

UNIVERSITY COLLEGE LONDON
FACULTY OF THE BUILT ENVIRONMENT
BARTLETT SCHOOL OF PLANNING

CAN PLANNING REDUCE THE RISKS WE FACE?
A Study of Managing Risks Associated with Major Hazard Sites

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Being a Dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of the **MSc Spatial Planning** at University College London:

I declare that this Dissertation is entirely my own work and that ideas, data and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

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Ciaran Gunne-Jones

**Dissertation in Planning
BENVGPL7**

**MSc Spatial Planning,
Bartlett School of Planning,
University College London**

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Front cover image taken in the aftermath of the Buncefield Oil Depot explosion, December 2005. Courtesy of Royal Chiltern Air Support Unit

Rear cover: Colour-coded risk zones used in The Netherlands. Source: BMIIB, 2008

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Abstract

This study assesses how effective the planning system is in managing the risks associated with major hazard sites. Through a number of research strands, it explores how the planning system evaluates risk factors through policies, processes and decision-making, and the system's relationship with external expert bodies and parallel regulatory regimes. In particular, the study draws upon analysis of planning appeal decisions, a review of Development Plan policies, and a survey of stakeholders. With regard to a series of research questions, the study discusses the factors that lead to an under-representation of risk factors within the current planning system. Finally, the study identifies the potential of a spatial planning approach to facilitate more collaborative working practices, and improve the planning system's ability to make judgements about the risks associated with major hazard sites, and attempts to mitigate the risks in and around such sites.

1.0 Introduction

'Can we know the risks we face, now or in the future? No, we cannot; but yes, we must act as if we do.' (Douglas and Wildavsky, 1982, p. 1)

Background

- 1.1 The explosion at Buncefield Oil Storage Depot in Hemel Hempstead in December 2005 was the largest explosion to occur in peacetime Britain. The main impact zone was home to 2,000 residents and some 30,000 employees, many located on the adjoining Maylands Business Park. Fortunately, the timing of the incident early on a Sunday morning minimised the number of casualties, but the cost to neighbouring firms was estimated at £70 million in damages, and resulted in severe environmental contamination and the demolition of nearly 60 buildings. The long-term prospects for the site remain unclear, but given its strategic importance within the national oil pipeline network, the depot is likely to be re-established.
- 1.2 The event has challenged long-held views about the scale and nature of potential risks from major hazard sites in the United Kingdom. It is likely to have a major influence on shaping future planning policy for the location of hazardous installations, and perhaps more importantly, how land uses are planned around them. Indeed, the Buncefield Major Incident Investigation Board (BMIIB) has called for a major review of the land use planning system around major hazard sites in Britain. Ultimately however, many hazardous sites in the UK pre-date any specific planning controls, and are often located close to or within urban areas. Hence the important potential role of the planning system in controlling development within areas identified as being at risk. However, as the BMIIB have underlined, this requires *'a balance to be made between the risks and benefits of development'* (2006, p. 2).

Research Objective

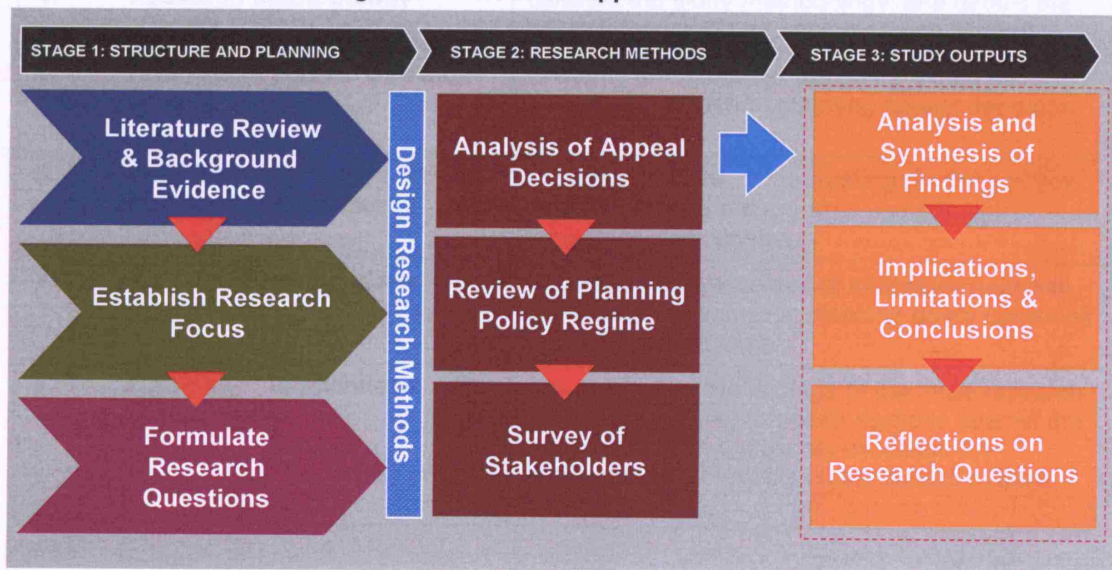
- 1.3 So the broad research objective that emerges is, how does the planning system manage risks associated with major hazard sites in the UK? How does planning seek to achieve a balance between the need for development and the level of risk to which residents and workers are potentially exposed? To what extent do planning policies respond to the risk assessments of 'expert' bodies such as the Health and Safety Executive? What weight is afforded to risk

factors within planning decision-making? To borrow from Douglas and Wildavsky's (1982, p. 1) classic question, *can planning reduce the risks we face?*

Research Approach

- 1.4 This study has adopted a three-stage research process, outlined in Figure 1.1 below. Each stage consists of a number of individual elements, each building on and augmenting the outcomes of the previous stage.

Figure 1.1: Research Approach



- 1.5 These stages comprise the following elements:
- **Stage 1** – review of background literature and other evidence, to inform the research focus and ultimately, to establish the key research question(s);
 - **Stage 2** – rather than simply one research method, this study has sought to corroborate its findings by pursuing three research 'strands', with each supporting and informing the other, providing both quantitative and qualitative data for analysis.
 - **Stage 3** – the findings of each research method are analysed and synthesised, before overall implications and conclusions are drawn, and the original research question(s) reflected upon.

- 1.6 More detail on the research methods adopted in Stage 2 is provided in **Section 4**.

Structure of the Report

- 1.7 The remainder of this report is structured as set out in Table 1.1 below.

Table 1.1: Report Structure	
2. Establishing the Context for Risk	A review of background literature and research on risk from sociological and technical perspectives, and the role of the planning system as a risk management tool.
3. The Research Focus	Establishes the key research questions to be considered by the study.
4. Research Methodology	Outlines the study methodology, and details the approach adopted for each research 'strand'.
5. Analysis of Appeal Decisions	Presents and analyses the primary data collected through the search of planning appeal decisions related to risk.
6. The Planning Policy Regime for Major Hazard Sites	Provides a review of the existing planning policy regime for major hazard sites and parallel regulatory mechanisms.
7. Survey of Stakeholders	Reports on the outcomes of interviews held with stakeholders involved in planning policy decisions for major hazard sites.
8. Findings, Implications and Conclusions	Draws together the findings of the three research strands considered in earlier sections against the study's research questions, assesses the implications and reflects on the overall outputs from the study.

STAGE 1: STRUCTURE AND PLANNING

2.0 Establishing the Context for Risk

- 2.1 This section provides a background literature review of research related, first, to 'risk' in its broadest sense and the different perspectives to it, and second, the ways in which the planning system acts as a risk management tool, and in particular with regard to major hazard sites. The purpose of such a review is to provide 'an interpretation and synthesis of published research' (Merriam, 1988, p.6), with the intention of framing a research question(s), and to provide the basis for comparing the findings and outputs produced by this study with those of others.

The Nature of 'Risk'

- 2.2 The concept of 'risk' has become a distinguishing – although not entirely new – feature of contemporary society, on the premise that '*risk is ubiquitous and no human activity can be considered risk free*' (Hood and Jones, 1996). This conception reflects that the nature of risk is perceived to be changing, with traditional preoccupations with natural 'hazards' being replaced with a realisation that risk is multifaceted. Risks overlap and interact, sometimes 'manufactured' by human activities themselves (Giddens, 1999, p.26).
- 2.3 The word 'risk' originates from the Italian *risicare* – which means simply 'to dare'. Modern definitions of risk vary in their specificity and emphasis (Table 2.1), but generally relate to the probability of a hazard occurring. A distinction should also be made between 'individual' risk (the chance of a particular individual or location being impacted), and 'societal' risk (the chances of numbers of people being impacted) (HSE, 2007, p. 9)

Table 2.1: Selected Definitions of Risk

Definition of Risk	Source
<i>'The likelihood that a hazard will cause a specified harm to someone or something.'</i>	Buncefield Major Incident Investigation Board, 2006
<i>'a combination of the probability, or frequency, or occurrence of a defined hazard and the magnitude of the consequences of the occurrence.'</i>	Department of the Environment, Transport and the Regions, 2000
<i>'Risk isn't the same as hazard or danger. Risk refers to hazards that are actively assessed in relation to future possibilities.'</i>	Giddens, 1999, p. 22
<i>'the likelihood (probability or frequency) of a harmful event such as injury or death from an accident at a major hazard'</i>	Health & Safety Executive, 1989
<i>'the probability that a particular adverse effect occurs during a stated period of time'</i>	Royal Society, 1992

- 2.4 Risk represents a significant and wide-ranging area of academic research, and it is not possible to capture this within this brief review. However, there are perhaps two key points of

note. First, risk is an inherently multi-faceted concept because we are exposed to numerous hazards in everyday circumstances. Sometimes risks emerge from where we might expect, for example a river breaching its banks after heavy rain, but sometimes less so, such as the debated long-term health impacts of living close to mobile telephone masts. Each of these risks varies in their scale, complexity, our knowledge-base and the extent to which they are within our control.

- 2.5 Second, risk is a relative rather than an absolute phenomenon. Bernstein (1996, p. 8) suggests that *'the actions we dare to take, which depends on how free we are to make choices, are what the story of risk is all about.'* Yet those choices can only be based on the information available to us, and as Cohen and Pritchard (1980) demonstrated by their 'four classes' of risk (Figure 2.1), very often this is only partial and fragmentary.

i. Certainty	ii. Risk Aware	iii. Uncertainty	iv. Unforeseen
Risks for which statistics of identified frequency, magnitude and loss are available	Risks for which there may be some evidence, but cause-effect relationships are uncertain	Uncertain of probability, outcomes or alternatives	Risks yet to be identified or yet to emerge

Figure 2.1: The Four Classes of Risk (after Cohen and Pritchard, 1980)

- 2.6 It is not surprising therefore that the study and management of risk has traditionally been very broad, but also highly fragmented and compartmentalised between different academic and technical disciplines, what the Royal Society (1992, p. 135) termed the 'risk archipelago'. Moving beyond individual disciplines, if we consider risk in its most generic sense, a distinction can be made between 'technical' and 'sociological' approaches to risk.

Differing Approaches to Risk

- 2.7 The traditional process through to identify, assess and alleviate risks is collectively termed 'risk management'. It encapsulates a widely-accepted range of interlinked components, such as those shown in Figure 2.2. As Hood and Jones (1996, p. 6) observe, risk management refers to *'all regulatory measures (in both public policy and corporate practice) intended to shape the development of and response to risks.'* Therefore, the principles of this risk management cycle can be applied to a wide range of risks.



Figure 2.2: The Risk Management Cycle (after Soby *et al*, 1993)

- 2.8 Fundamentally, the risk management process is premised on two basic propositions – first, that risk should be reduced to a ‘tolerable’ or ‘as low as reasonably practicable’ (known as the ALARP principle) level, and second, risk is only acceptable if it is outweighed by greater aggregate benefits. On this basis, the management cycle is conceived to be an inherently technical process, drawing on the inputs of ‘experts’ to identify and address risks in a systematic manner. A feedback mechanism is provided between the evaluation (Stage 5) and identification (Stage 1) stages, which is designed to allow for continuous improvement in anticipating and responding to risks.
- 2.9 However, it is also apparent that issues of risk perception and communication are also fundamental to each stage of the cycle – the way in which risks are framed, the approaches to measuring and monitoring risk, and making judgements about what constitutes a risk. As Gerrard (1995, p. 435) notes, *‘the notion of ‘management’ implies some form of decision-making, often reconciling interests of different parties, and requiring judgements to be made.’* Ultimately, even though it is intended to be a technical process, even here we can see that uncertainties and value judgements underpin every stage of the risk management cycle (Table 2.2).

Table 2.2 Judgements Implied by the Risk Management Cycle

Hazard Identification	Risk Assessment	Policy development / implementation	Policy Evaluation
<ul style="list-style-type: none"> - what type of hazard? - how big and how severe? - increasing or reducing? - where and when? - which groups are most at risk? 	<ul style="list-style-type: none"> - which method to assess? - which assumptions to use? - is the data reliable? - how sensitive are estimates to changes in assumptions? 	<ul style="list-style-type: none"> - what actions are implied? - how to justify a particular course of action? - the cost of managing the risk? - who pays? 	<ul style="list-style-type: none"> - who benefits, and how? - actual v expected benefits - type and magnitude of benefits? - balancing point between risks and benefits?

Source: Based on Sinisi (2003, p. 183)

- 2.10 Therefore, risk management typically poses some recurring dilemmas. Is there an 'acceptable' level of risk? Who should take responsibility? At what point do the benefits of risk reduction outweigh the costs, and who decides? Who pays? Which risks merit more attention than others? These types of questions go beyond the traditional priorities of purely technical and management solutions to risk, to consider broader questions about the social construction and perceptions of risk.
- 2.11 Whilst the natural hazards literature increasingly focuses on vulnerability, and the relationship between hazards and the spatial and social circumstances of communities at risk, this approach has been less accepted and utilised in relation to man-made hazards (Walker *et al*, 2000, p.120). However, as Gerrard (1995, p. 435) suggests, '*the concept of risk is neither entirely abstract not wholly physical: it is socially constructed and so must be socially resolved through mediation and negotiation between the parties involved.*' The planning system frequently finds itself at this juncture, where technical evidence meets public concerns (Figure 2.3).

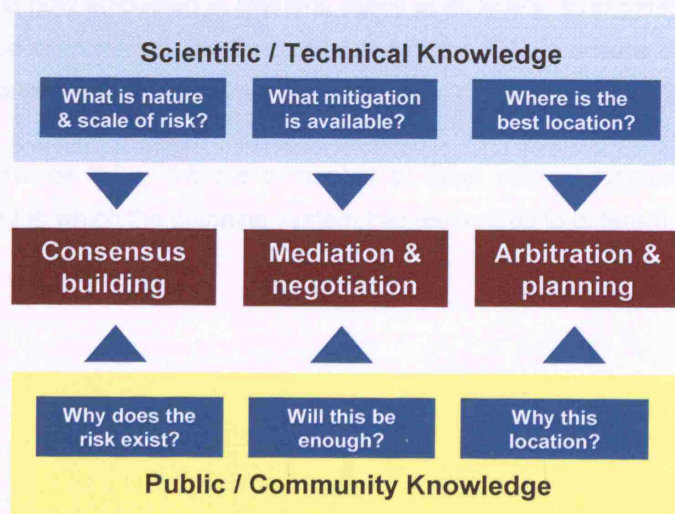


Figure 2.3: Bridging the Technical-Sociological Risk Divide (adapted from Gerrard, 1995, p. 446)

The Planning System as a Risk Management Tool

- 2.12 Land-use planning has long been recognised as a potentially valuable tool in the long-term reduction of risk and human vulnerability. Drawing on natural hazards research from the United States, Burby (1999, p. 248) indicates that the planning system offers a number of possibilities in this respect:

'By guiding urban expansion and redevelopment to locations that are free of hazards, planning programs (sic) eliminate the possibility of significant damage. Where hazardous areas have advantages for development that cannot be forgone, planning programs reduce the potential losses by steering development to the least hazardous parts of the building sites and by modifying building and site design practices so that risk is reduced.'

- 2.13 The concept of risk is not uncommon in the planning system, although it is often implicit rather than explicit. The planning policy statements and guidance notes that express government policy on the individual aspects of land use planning rarely refer to risk specifically. The exceptions are PPS23 *Planning and Pollution Control* which is premised on the precautionary principle for assessing whether development is likely to result in unacceptable levels of pollution. The precautionary principle is invoked when:

- *'There is good reason to believe that harmful effects may occur to human, animal or plant health, or to the environment; and*
- *The level of scientific uncertainty about the consequences or likelihood of the risk is such that best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making'* (ODPM, 2004a, p. 3).

- 2.14 The other major exception is in the case of flood risk. Prompted by the flooding episodes over the past decade, a risk-based approach to assessing proposals for development in or affecting areas at flood risk is now embodied in planning policy at all levels, strengthened by powers of direction that can be exercised by the Environment Agency (EA) to ensure that local planning authorities cannot override the EA where an unacceptable risk of flooding exists.

- 2.15 Set out below in Tables 2.3 – 2.5 are a number of short policy 'vignettes' which provide examples of the way in which the planning system has responded to different types of risks.

Table 2.3: Policy Vignette 1 – Planning for Flood Risk

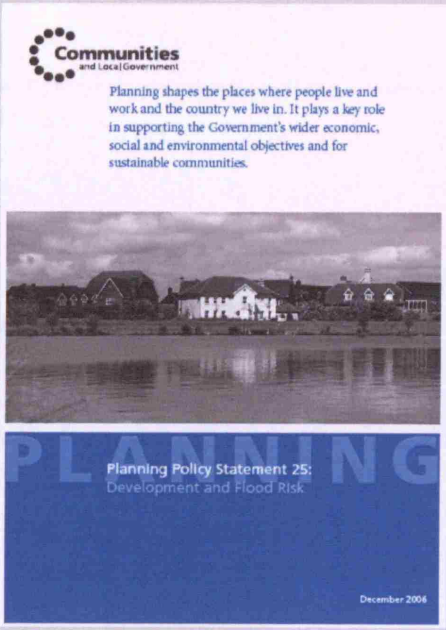
	<p>Notwithstanding that flood risk had represented a material consideration in determining planning applications at least since Circular 30/92, it was only following the severe flood episodes of 1998 and 2000 that greater priority was afforded to flood risk within planning policy. In 2001, <i>Planning Policy 25: Development and Flood Risk</i> (PPG25) was published, and included giving the Environment Agency an advisory role on flooding issues, both in policy and development control terms.</p> <p>In late 2006, a new <i>Planning Policy Statement 25 on Development and Flood Risk</i> (PPS25) replaced PPG25, bringing notable changes. The approach to reducing flood risk is now threefold: safeguarding land from development where necessary; reducing risk through location, layout and design; and using opportunities offered by new developments to reduce flooding impacts, for example sustainable drainage systems. A more sophisticated approach to flood zoning and sequential testing of sites has also been developed, while critically, the Environment Agency is now a statutory consultee.</p>
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Table 2.4: Policy Vignette 2 – Planning and Pollution Control

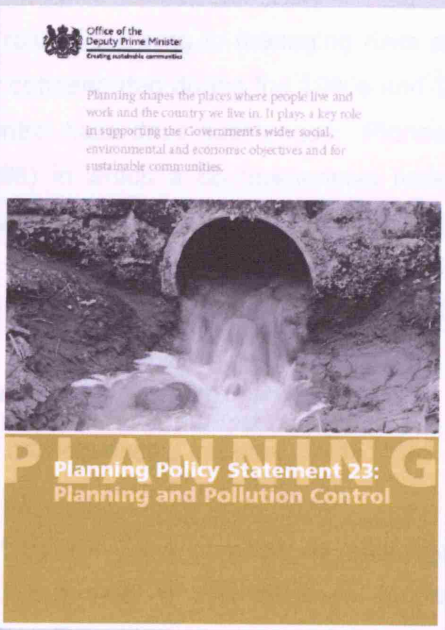
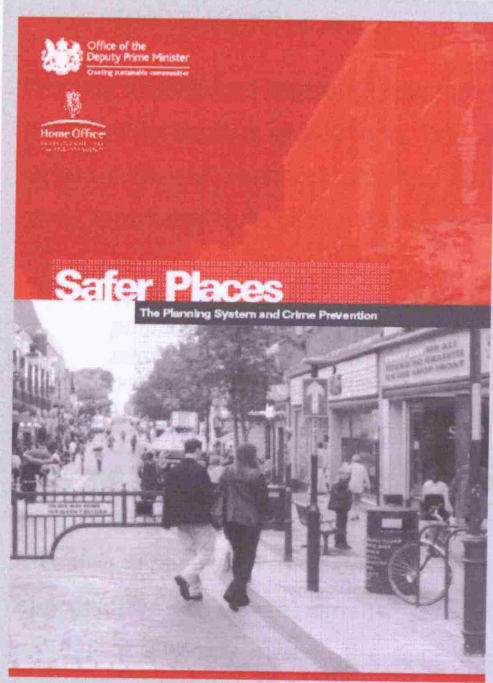
<p>PPS23 'Planning and Pollution Control' was published in November 2004, replacing the earlier PPG23. It advises that any consideration of the quality of land, air or water and potential impacts arising from development, leading to impacts on health, is capable of being a material consideration in the planning process.</p> <p>The approach adopted in PPS23 is based on the 'precautionary principle' and advises that the principle should be invoked when there is good reason to believe that harmful effects may occur to human, animal or plant health, or to the environment; and the level of scientific uncertainty about the consequences or likelihood of risk is such that best available scientific advice cannot assess the risk with sufficient confidence to inform decision-making.</p>	
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Table 2.5: Policy Vignette 3 – Planning for Crime Risk

	<p><i>Safer Places</i> identifies 'designing out' crime and 'designing in' community safety as central to the planning process and the concept of creating sustainable communities. The Guide identifies seven attributes of sustainable communities that are particularly relevant to crime prevention, including that the level of human activity should be appropriate to the location and creating a reduced risk of crime and a sense of safety at all times.</p> <p>Reducing the risk of crime is therefore confirmed as a responsibility of the planning process. The Guide contains a planning toolkit which is designed to be used to secure crime prevention and promote community safety. The focus is developing appropriate planning policies and using development control effectively.</p>
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Planning and Major Hazard Sites

- 2.16 Previous research specifically considering the role of planning in managing risks associated with major hazard sites is limited, and generally concentrated during the 1980s and 1990s at a time when new legislation was emerging to control hazardous substances. Pioneering work on this subject was undertaken by Petts (1988) in which a comprehensive review of the planning policy approach to major hazard sites was undertaken, which commented:

'Legislative reform and most particularly 'hazardous substance consent' has finally provided LPAs with the opportunity to control the creation of new hazards. However, planning can still only prevent future bad siting decisions. There are some existing sites which are poorly located in terms of proximity to the public. There would seem to have been an element of 'luck' in the fact that Britain has not suffered a serious (in terms of off-site consequences) accident' (Petts, 1988, p. 67)

- 2.17 In hindsight, this comment may appear unfortunate in view of what we now know would happen at Buncefield, but the study identified a number of shortcomings, recommending strengthening the role of the Health and Safety Executive as an 'expert' body, reducing confidentiality constraints, and better training of planners in risk assessment issues. A later study by Miller and Fricker (1993) drew early attention to the tensions between the planning system and the role of the HSE:

'whilst the statutory roles of public bodies like the HSE and the LPAs may be aimed towards the pursuit of the 'common good', differences in the ways in which their respective roles have come to be interpreted lead to conflicts at the less elevated level of implementation' (Miller and Fricker, 1993, p. 253)

- 2.18 Work by Walker and Bayliss (1998) focused on the role of the Development Plan in managing risks from hazardous installations. This research concluded that Development Plans frequently lacked sufficient treatment of major hazard sites, and outputs of this study are considered more specifically in Section 6. However, at the outset, the research observed:

'Achieving some degree of separation between hazard and people, can, in principle, be achieved through land-use planning, although the level of separation needed and achievable is inevitably a matter of judgement and involves balances and compromises with other considerations' (Walker and Bayliss, 1998, p. 23)

- 2.19 More recent work which seeks to capture sociological perspectives of risk was undertaken by Snary (2003) in a study of planning applications for waste-to-energy incinerators. This research investigated the extent to which psycho-sociological factors form the basis of public opposition to such developments, reflecting perceptions of risk and the trustworthiness of the regulatory authority making the decision. The analysis found that planning officers typically have only a partial appreciation of these issues, and need to ensure that sufficient weight is afforded to public concerns rather than dismissing them as mere NIMBYism ('Not In My Back Yard').
- 2.20 One of the objectives of this study is therefore to test the extent to which some of these conclusions remain valid.

3.0 The Research Focus

Defining the Research 'Gap'

- 3.1 As outlined in Section 2, risk is a complex and multifaceted concept, for which there are multiple perspectives and interpretations, the so-called 'archipelago'. The planning system regularly comes into contact with risk and, in some cases, a policy position and due process has been established. However, the starting point for this study was the 2005 explosion at the Buncefield Oil Storage Depot in Hemel Hempstead. How did the surrounding area come to be home to 2,000 residents and some 30,000 employees? There has been limited recent research on the planning system's approach to managing the risks associated with major hazard sites. This represents just one small island in that risk archipelago, but this study is an attempt to help fill, at least in part, that gap.
- 3.2 Fundamentally, this is a study about the planning system – its policies, processes and decision-making – rather than one which seeks to answer a theoretical question or add to an academic debate. Rydin (1985, p. 7) notes that “[t]he purpose of research into the planning system must be the greater understanding of that system. Progress is measured by our enhanced knowledge of what planning does and how it does it.” In the context of an event like Buncefield, perhaps we need to understand what planning does *not* do, but that in itself would be to prejudice a line of research enquiry. However, taken together, this provides us with the overall research question for this study, to assess on balance **how effective is the planning system in managing the risks associated with major hazard sites?**
- 3.3 This implies a number of more specific research questions that will cumulatively contribute to evaluating the overall research question:
- *To what extent is risk a factor in planning decision-making?*
 - *What are the relevant processes and procedures?*
 - *In the context of a plan-led system, what is the role of the Development Plan in managing risks?*
 - *How do planning decision-makers evaluate risk?*
- 3.4 These 'sub-questions' underpin the overall research question pursued by this study, and influence the research methods adopted. In seeking to answer these questions, it is hoped that the study can provide practical outputs and recommendations.

A Spatial Planning Perspective

- 3.5 The concept of 'spatial planning' has emerged as a new direction for planning in the UK, defined in Planning Policy Statement 1: *Delivering Sustainable Development* (ODPM, 2005) as going "*beyond traditional land use planning to bring together and integrate policies for the development and use of land with other policies and programmes which influence the nature of places and how they function.*" It implies the 'opening up' of planning from the narrow confines of land-use regulation to, at the very least, being informed by the needs of a much wider range of space 'users', but also potentially, providing a mechanism to coordinate and integrate the often conflicting demands of these users. Taken furthest, spatial planning seeks to rectify a perceived erosion of 'vision' within planning (Tewdwr-Jones, 2004).
- 3.6 The analysis that follows has been employed sensitive to the possibilities of an emerging spatial planning approach, and so we might add a further, almost implicit research question:
- *What implications do the findings of this research have for a spatial planning approach?*

STAGE 2: RESEARCH METHODS

4.0 Research Methodology

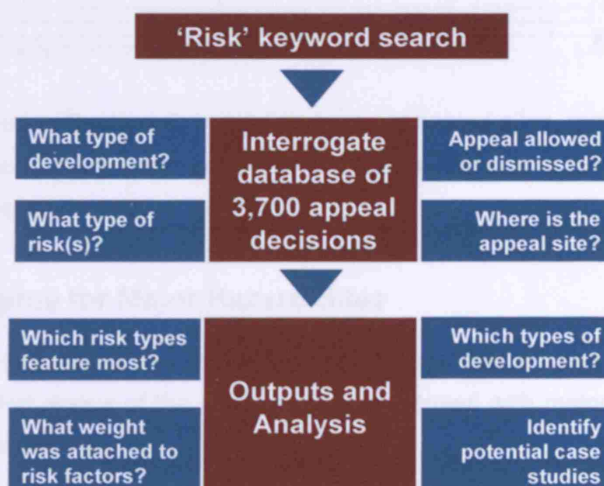
- 4.1 Within the three-stage approach introduced at the beginning of this study (Figure 1.1), Stage 2 incorporates three research 'strands', each responding to a different research question as set out in Section 3. These are summarised in Table 4.1 below, and detailed in the subsequent sections.

Table 4.1: The Adopted Methodology

Research strand	Data type / source(s)	Method	Related research question(s) (from Section 3)
a. Analysis of appeal decisions	Primary – COMPASS database of 135,000 planning appeals	Key word search, and cataloguing of results by date, location, decision and risk type	To what extent is risk a factor in planning decision-making?
b. Review Planning Policy Regime for Major Hazard Sites	Secondary – Local Plans, Supplementary Planning Guidance etc	Review of planning and other policy documents relating to major hazard sites, and survey of Local Plan documents	What are the relevant processes and procedures? In the context of a plan-led system, what is the role of the Development Plan in managing risks?
c. Survey of Stakeholders	Primary – selected stakeholders	Questionnaire surveys and telephone interviews with local planning authorities and others	How do planning decision-makers evaluate risk?

a. Analysis of Appeal Decisions

- 4.2 The first strand involved a search of the COMPASS online database of appeal decision, which provides access to 147,000 appeal decisions dating back to the mid-1980s. Given the general lack of existing empirical data on the extent to which risk issues feature as part of the planning process, the purpose of this technique was to provide quantitative data on the extent to which risk is a factor in planning decision-making in overall



relating to major hazard sites.

4.3 The COMPASS database was interrogated based on a keyword search of the word 'risk', generating about 3,700 appeal decision results. From these results, a sample of 750 appeal decisions (20%) from the period 2006-2008 was compiled. Each appeal was then interrogated, with key information recorded within a Microsoft Excel spreadsheet, including the type of development concerned, the type of risk(s) identified, whether the appeal was allowed or dismissed, and the local authority the appeal site was located within. For expediency of data entry, drop-down 'lists' were constructed within Excel (see Figure 4.1). A sample page from this spreadsheet is included in Appendix 1

Figure 4.1: Drop-down 'lists' constructed for data entry

[illegible]

4.4 The outputs of this analysis are presented in **Section 5**. In relation to major hazard sites, this data has also been used to identify case study local authorities for further analysis in the subsequent research strands, outlined below.

b. Review Planning Policy Regime for Major Hazard Sites

4.5 To understand the planning processes and procedures relevant to the management of risks, this research strand focused on a detailed review of the policy regime associated with major hazard sites, and how this has evolved over time.

- 4.6 First, this involved reviewing key policy documents and reports, and a review of parallel regulatory regimes, for example the role of the Health and Safety Executive. Second, drawing on the case study local authorities identified through the analysis of appeal decisions, a survey of Development Plan policies concerning major hazard sites was also conducted.¹
- 4.7 The outputs of this analysis are presented in **Section 6**. This review also identified stakeholders for survey in the final research strand, detailed below.

c. Survey of Stakeholders

- 4.8 Informed by the previous research strands, the final element of research was a survey of stakeholders, to gain a deeper understanding of the factors that influence how planning decision-makers evaluate risk.
- 4.9 The chosen method of data collection was a self-completion questionnaire, circulated to 'elite actors' (herein termed 'stakeholders'). These consisted of local authority planning policy officers and others (listed in Appendix 2), selected on the basis of the earlier research strands. 'Elites' is used here to describe an individual 'who in terms of the interviewer is given special, non-standardized treatment' (Dexter, 1970, p.5). In these circumstances, the researcher to an extent allows the respondent to guide them in terms of the issue, the question and the situation on the basis of their particular position. For the nature of qualitative research is interpretative, intrinsically 'learning to see the world of individuals or groups as they see it' (Schwartz and Jacobs, 1979, cited in Eyles and Smith, 1988). As Dexter (1970, p.6) suggests, 'in an elite interview, an exception, a deviation, an unusual interpretation may suggest a revision, a reinterpretation, an extension, a new approach.' The methodology presented here has been employed sensitive to this possibility.
- 4.10 Robson (1993, p. 243) outlines the relative advantages and disadvantages of self-completion questionnaires (see Table 4.2). A key consideration was the need for flexibility, given that the list of intended respondents was varied in terms of geographical location. Additionally, self-completion questionnaires facilitate collecting potentially sensitive information by allowing respondents to complete them in privacy and at a time of their choosing, but which might otherwise be precluded by the presence of an interviewer (Watts and Halliwell, 1996, p. 397). Given the 'position' of respondents, issues of superficiality and seriousness were deemed less important, but drafting of instructions and questions required particular care to avoid any ambiguities. The content of the questionnaire was tested against the research questions set out in Section 3, and refined as a consequence.

¹ 'Development Plan' collectively refers to Structure Plan, Unitary Development Plan and Local Plan policies, as appropriate.

Table 4.2: Advantages and Disadvantages of Self-Completion Questionnaires

Advantages	Disadvantages
<ul style="list-style-type: none">• Efficiency in terms of administration• Quick and easy to conduct• Large sample possible• Facilitates multiple forms e.g. hand-out, postal etc	<ul style="list-style-type: none">• Data can be superficial; little way of checking honesty and seriousness of responses• Responses constrained by pre-determined answers, limited room for expansion and explanation• Requires clear and unambiguous instructions and careful wording of questions• Response rates vary considerably

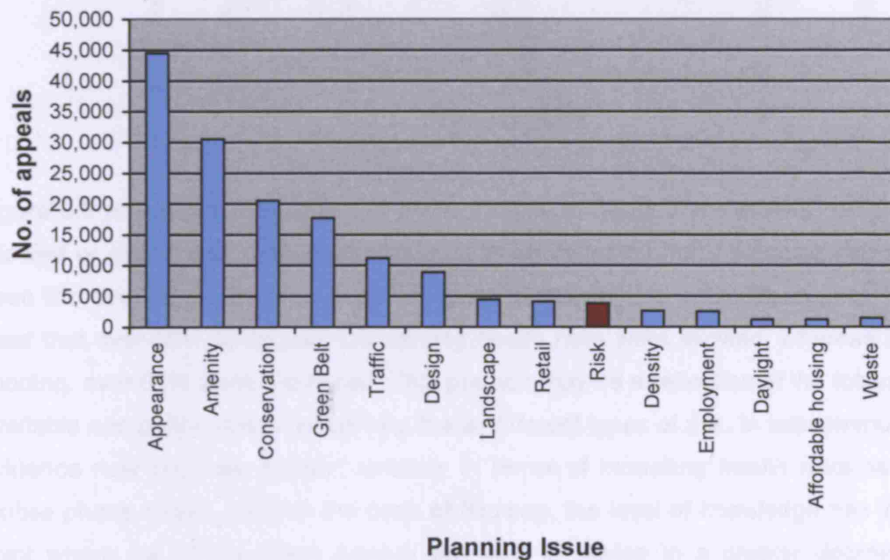
Source: Robson (1993, p. 243)

- 4.11 In designing the questionnaire, a balance has been sought between 'open' and 'closed' question types. The closed questions provide respondents a 'list' of options to choose or rank, according to what most represents their views. These are simple to answer, and allow for easy comparison between responses (Robson, 1993, p.243). The options offered in these questions have been determined by the research questions, and also the findings of the earlier research strands. A number of open questions were also provided, to give respondents greater opportunity to expand on or clarify their views.
- 4.12 Electronic mail was selected for the distribution of the questionnaire. Dillman (1998, p. 352) outlines the efficiencies of this method as cost savings over traditional postage, and reduced implementation time required. More important however, was the compatibility of email with the 'targeted' nature of the questionnaire, while retaining the relative familiarity of a paper questionnaire. Questionnaires were delivered as Microsoft Word attachments directly to an individual's inbox with a covering letter and instructions, making completion and return easier. Telephone calls were made in advance to establish the most appropriate contact and introduce the nature of the research being conducted. The message 'tracking' option in Microsoft Outlook allowed for monitoring of progress through the request of 'delivered' and 'read' receipts.
- 4.13 The outputs of this survey are presented in **Section 7**. A copy of the final questionnaire is included in Appendix 3. In addition, two telephone interviews were undertaken to supplement the questionnaires, detailed in Section 7.

5.0 Analysis of Planning Appeal Decisions

- 5.1 The outcomes of planning appeals are an important element of the planning process. Appeals represent a verification mechanism, testing the outcome of a Local Planning Authority's (LPA) determination of planning applications. They provide an opportunity for different material considerations to be evaluated and weighed against each other, and development plan policies scrutinised. In this section, appeal decisions therefore represent an independent test when assessing *to what extent is risk a factor in planning decision-making?*
- 5.2 As a broad 'snapshot' exercise, a series of keyword searches have been conducted of the COMPASS online appeals database, which currently holds details of about 147,000 appeals. The results are set out in Figure 5.1, based on a range of selected common planning issues. This is by no means exhaustive, but gives a flavour of the frequency with which different planning issues feature in appeal decisions. 'Risk' in its broadest sense features in about 3,700 (3%) of total appeals recorded.

Figure 5.1: Number of Appeal Decisions by Key Word

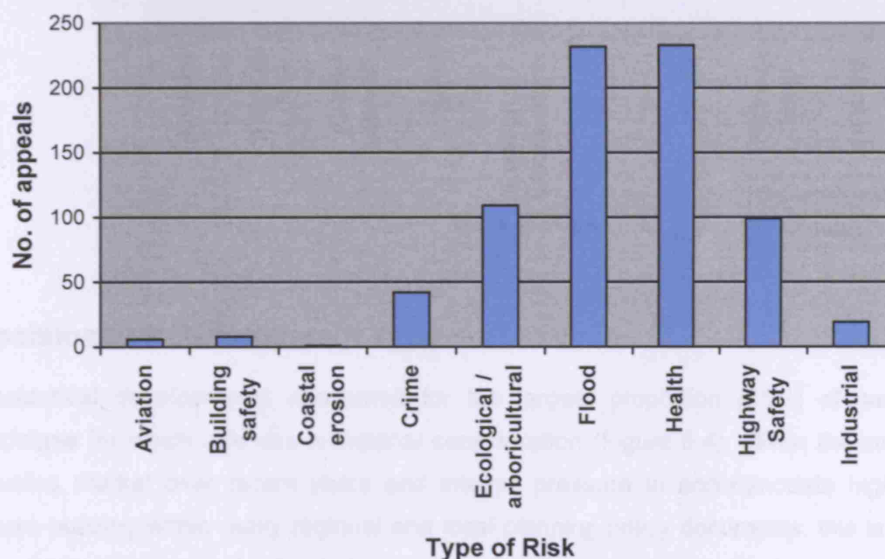


- 5.3 A sample of the 750 most recent risk-related appeal decisions (20% sample) between 2006-08 was analysed, with information being recorded on a spreadsheet (see Appendix 1). The value of this sample lies in the insight it provides on the planning decision-making process. In describing this sample, the analysis that follows cannot provide valid statistical information, nor can it be used if make inferences about the parent dataset.

Decisions by Risk Type

- 5.4 From the sample of risk appeal decisions analysed, the largest proportion related to health and flood risks (both 31%). Together, these risk types amounted to over 60% of all appeal decisions where risk was a material consideration. These were followed by ecological / arboricultural (14%) and highway safety (13%) risks. Industrial risk accounted for just 2% of sampled appeal decisions (Figure 5.2).

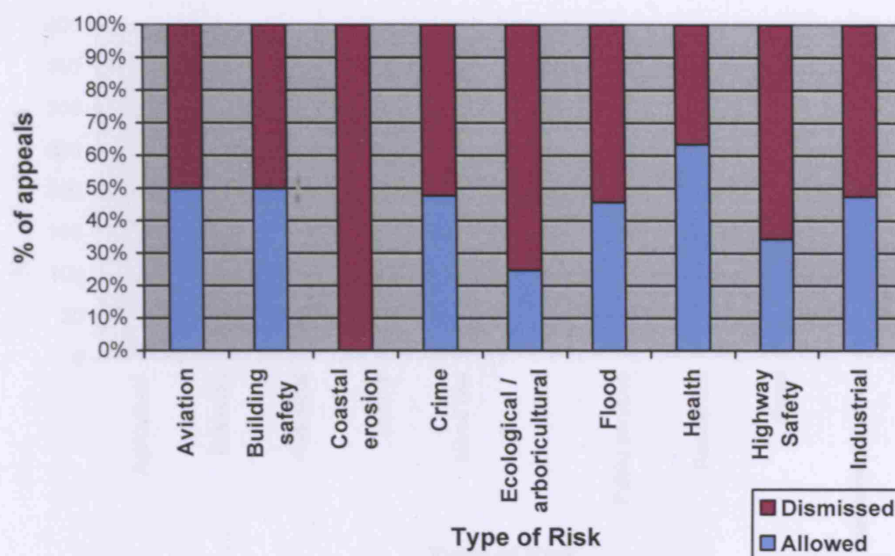
Figure 5.2: Number of Appeal Decisions by Risk Type



- 5.5 Figure 5.3 provides a breakdown of each risk type in terms of the appeal outcome (i.e. either allowed or dismissed). The analysis needs to be caveated here, because risk may not have been the over-riding factor in determining the outcome of a particular appeal. However, it is clear that over 60% of appeals concerning health risks were allowed, whereas in the case of flooding, over 60% were dismissed. This position may be a reflection of the technical evidence available and policy status concerning these different types of risk. In telecommunications, the evidence now provides greater certainty in terms of modelling health risks associated with mobile phone masts, while in the case of flooding, the level of knowledge has increased to a point where the Environment Agency are able to advise to a greater degree of accuracy whether a site is liable to flooding or not. Given the huge costs associated with major flood events in the UK in recent years, and the adoption of PPS25, that 60% of appeals are dismissed suggests that flood risk now holds significant weight in planning decisions.²

² Many appeal decisions refer to the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines which provide a degree of technical evidence on health risks from telecommunications masts, while PPS25 embodies a more sophisticated policy approach to flood risk issues (see Section 2).

Figure 5.3: Percentage of Appeals Allowed or Dismissed by Risk Type



Decisions by Development Type

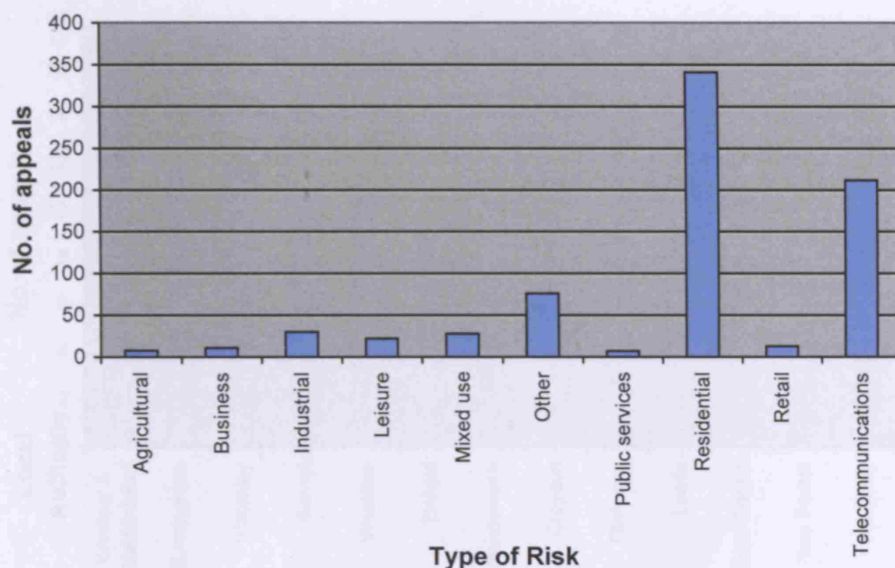
5.6 Residential developments accounted for the largest proportion (45%) of sample appeal decisions for which risk was a material consideration (Figure 5.4). Given the strength of the housing market over recent years and intense pressure to accommodate higher levels of house-building within many regional and local planning policy documents, this is perhaps not surprising. In the majority of housing appeals, flooding was the identified risk.

5.7 The second highest proportion was mobile telecommunications masts, accounting for 28% of all decisions surveyed. As might be expected, in nearly all cases, health risks were the identified risk. There is some evidence that the volume of appeal decisions relating to masts has been inflated by public perceptions of the risks concerned:

"The large majority of people feel that they can't do without a mobile phone. But if an operator wants to put up a phone mast in a borough, the application will go to committee, where there will be residents' pressure for it to be refused. In these circumstances, we would most likely lose the subsequent appeal. Phone operators will find it incredibly hard to get their proposal through the planning process." (Head of Planning, London Borough of Southwark, cited in Bradwell et al, 2007, p. 8).

5.8 By comparison, industrial developments accounted for just 4% (30 decisions) of the sample.

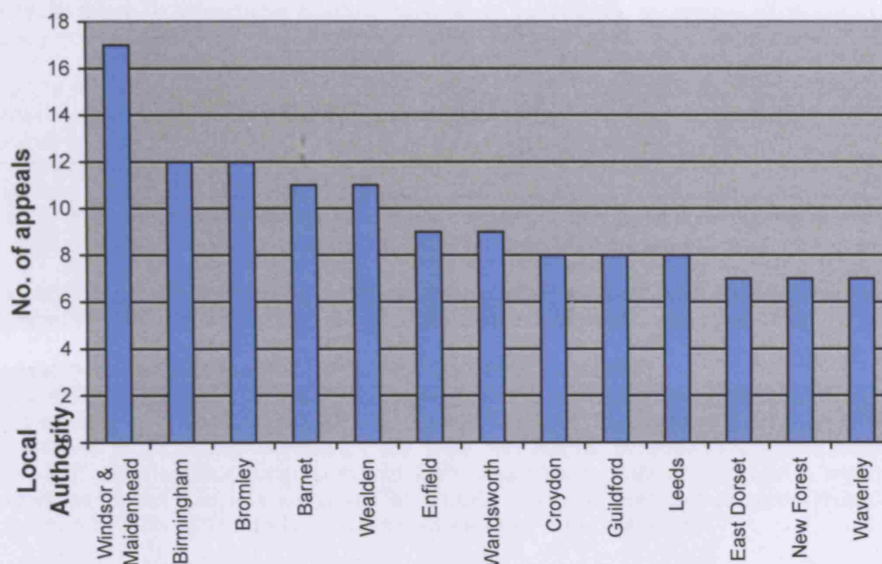
Figure 5.4: Number of Appeal Decisions by Development Type



Decisions by Local Authority Area

- 5.9 Information was also recorded on the local authority area relating to each appeal decision, with the most frequent results shown in Figure 5.5. Windsor and Maidenhead recorded the highest number of appeals from the sample taken, the overwhelming majority of which related to flood risks in terms of residential development proposals. In the cases of Birmingham, Bromley and Barnet, the majority of appeal decisions related to health risks from telecommunications masts. Indeed, this combination was also frequent in other urban authorities, including Enfield, Leeds and Wandsworth. Other local variations reflected the geography of particular areas, for example in East Dorset, most appeal decisions related to ecological risks to designated Special Protection Areas of heathland from residential developments.

Figure 5.5: Highest risk-related appeals by Local Authority Area



Survey of Appeal Decisions

- 5.10 From the sample of risk appeal decisions, nine decision notices were identified for more detailed analysis, to gain an insight into the nature of decision-making around risk considerations. These decisions highlighted a range of different risk types, geographical locations and decision outcomes. These have been summarised in Table 5.1 below, with the key message being identified in each case.

Table 5.1: Analysis of Selected Appeal Decisions

Appeal Decision 1: King's Lynn and West Norfolk (APP/V2635/A/06/2018040/NWF)

In a 2006 appeal decision in King's Lynn and West Norfolk involving the conversion of offices to residential use, the Inspector identified the acceptability of risk posed to the occupants of the proposed dwelling to be the key issue for consideration.

The site was located within the Consultation Distance of major hazard installations. HSE had undertaken an assessment using the PADHI model and advised against the grant of planning permission.

In assessing the level of applicable risk the Inspector identified an anomalous situation with regard to the PADHI model and concluded that *... "whilst the model represents a well developed approach to risk assessment and the advice that HSE gives, I consider that it has shown its limitations in the face of the fine detail of this case"*

He proceeded to grant permission on the basis of the small scale of development involved concluding that the level of risk posed to the occupants of the development would be an acceptable one and one that complied with the relevant development plan policy.

Key Message: Inspectors are not committed to accepting the HSE advice and if considered acceptable will determine appeals that are contrary to consultation responses.

Appeal Decision 2: Dartford (APP/T2215/A/07/2049360)

In a 2007 appeal decision in Dartford involving a redevelopment for residential use, the Inspector identified the main issue to be whether there would be an increase number of people exposed to risk arising from proximity to an adjacent site on which hazardous chemicals were stored.

The site was located within the Inner Consultation Zone and on the basis of PADHI assessment, HSE advised against the development. However, the Appellant argued that under the terms of the hazardous substance notification, the actual substances present on the site were less hazardous. The Inspector pointed to the Hazardous Substance Consent which provided a greater entitlement and freedom to introduce substances that would result in a greater hazard. Since the development would include an element of affordable housing and the likely presence of children and elderly persons who would be more inherently vulnerable, the Inspector dismissed the appeal.

Key Message: The planning process can work in tandem with the hazardous substances consent regime which can provide an additional safety net to minimise risks.

Appeal Decision 3: Wakefield (APP/00X4725000/A/06/2008338)

In a 2006 appeal decision in Wakefield involving a telecommunications mast located close to a school, the Inspector identified the perceived health implications of the mast as a key issue. Although noting the findings of the Stewart Report on this issue and that the proposed installation would be ICNIRP compliant, the Inspector considered that fears about health implications were a legitimate material consideration and this was supported by PPG8. The high level of public sensitivity, although not supported by technical evidence, led the Inspector to dismiss the appeal.

Key Message: Despite extensive assessment of the potential health risks of telecommunications masts and the findings of the Stewart Report and ICNIRP guidelines which confirm that there are no health risks, this Inspector concluded that fear of risk was a material consideration.

Appeal Decision 4: Redcar and Cleveland (APP/ V0728/A/07/2045733)

In a 2008 appeal in Redcar and Cleveland for a residential development, the Inspector identified a key issue as the effect on the health and safety of potential occupants arising from proximity to a nearby industrial estate. Activities on the industrial estate included tyre storage and shredding which could pose a health and safety risk through fires.

The Council had rejected the application on the basis of the precautionary principle. However, the Inspector could not find any specific evidence of a health or safety risk to future occupants and proceeded to allow the appeal.

Key Message: Although the application of the precautionary principle is valid, there must be substantive evidence of a risk to health and safety for a proposal to be dismissed on appeal, whereas at the Council level there may be greater flexibility as a result of the democratic process.

Appeal Decision 5: Horsham (APP/ V0728/Z3825/A/07/2057457)

In a 2008 appeal in Horsham involving the conversion of a warehouse to residential, the previous use was as a tannery with a likelihood of contamination being present. The Inspector referred to PPS23 and the requirement, where development involves land that may have been affected by contamination, to undertake an assessment of risk before any determination. The Appellant had failed to undertake any risk assessment and as a result the appeal was dismissed.

Key Message: If there is any prospect of contamination then an appropriate risk assessment is the only way to demonstrate the potential for contamination and how it can be overcome.

Appeal Decision 6: Shepway (APP/ L2250/A/06/2029064)

In a 2007 appeal in Shepway one of the issues raised by local residents in response to a proposed residential development was the potential safety aspects of locating housing in close proximity to an electricity sub-station. The Inspector noted however, that EDF Energy had raised no objection to the proposal and proceeded to allow the appeal.

Key Message: The planning process involves extensive consultation with various authorities and agencies and if the competent agency raises no objection then the way is cleared for a planning permission to be granted.

Appeal Decision 7: East Sussex (APP/G1440/A/08/2066057)

In a 2008 appeal decision in Wadhurst, East Sussex (APP/G1440/A/08/2066057) the proposed development involved the formation of additional hardstanding for car breaking. One of the issues considered by the Inspector was the potential risk to a nearby watercourse as a result of oil spillages. He noted that measures to minimise any risk of pollution would be a requirement of a Waste Management Licence and could also be covered by conditions imposed on any planning permission and that adequate provision could be made to avoid any risk of pollution. The appeal was however dismissed on other grounds.

Key Message: The ability to exercise control under other legislation provides a safety net to minimise any risk of pollution.

Appeal Decision 7: Forest of Dean (APP/P1615/A/06/2029294)

In a 2007 appeal decision involving the construction of a natural gas pressure reduction installation in the Forest of Dean which was determined by the Secretary of State, two risks were considered. Firstly, the risk to persons living in the locality and secondly, risks associated with terrorist attack. On the first risk issue, the Secretary of State concurred with the Inspector who had concluded that the appropriate risk assessment had been undertaken in line with Pipeline Safety Regulations and that the risk of fatality to persons living in the immediate vicinity of the site would be about 10-15 less than the tolerable level of risk imposed on a population for the wider interests of society based on HSE guidance. On the second risk, the Inspector concluded that risks could not be quantified and would be minimised by adopting advice from the relevant agencies. The appeal was dismissed however on other grounds.

Key Message: The assessment of risk had been undertaken in accordance with the relevant guidelines and this was definitive in concluding that the level of risk was tolerable.

Appeal Decision 8: East Riding of Yorkshire (APP/E2001/A/06/2024097)

In the case of a 2007 appeal the development proposed was the extension and development of an existing power generation facility and underground natural gas facility to connect to the national transmission system. An inquiry considered a refusal of planning permission, a refusal of a hazardous substances consent application and an application for a Gas Storage Authorisation Order. One of the many issues considered in the various appeals was safety.

The proposals had been assessed by the Hazardous Installations Directorate of the HSE who had raised no objections to the proposals. Local residents considered that because the proposed development involved high pressure storage it was inherently hazardous and objected to the proposals. The development was subject to a risk assessment and if, granted would be subject to a range of additional regulatory controls and inspections administered by the HSE. The Inspector identified that the residents concerns were based on a perception of fear of risk, and whilst this may be a legitimate consideration, to be credible it must be supported by substantial evidence. On this issue the Inspector found there to be no technical grounds or evidence to support the objection and the various appeals were allowed, although a much wider range of issues were ultimately assessed.

Key Message: Again, the key message is that if a proposal is subject to an appropriate risk assessment and a safety net is provided by other legislation then this is sufficient to counter a perception of risk which is unsubstantiated.

Appeal Decision 9: Peterborough (APP/J0540/A/07/2038241)

In a 2008 appeal decision in Peterborough which involved an increase in the number of bedrooms at a proposed motel the Inspector identified the risk to the health and safety of motel occupants arising from proximity to a gas compressor as a key issue.

The motel had already received permission subject to a limit on the bedrooms and the Appellants were seeking to increase the number of bedrooms by varying the terms of the condition. The site was located within the inner consultation zone, but at the time of granting the original permission it was located outside the consultation zone. The application to vary the condition was not subject to any formal consultation with the HSE and therefore, they had made no representations. The Council had undertaken an assessment using the PADHI model and this resulted in advice against the development. National Grid had indicated that in their view risk was negligible. The Inspector concluded that the PADHI assessment was material and notwithstanding that National Grid considered risk to be negligible and the HSE had made no representations, she dismissed the appeal on the basis that the increase in the number of bedrooms would result in potential harm to the health and safety of potential occupants.

Key Message: An assessment by a relevant agency (National Grid) had identified a low risk. However an assessment using the PADHI model indicated otherwise and the Inspector considered this to be more reliable.

Overall Findings

5.11 From the analysis of a sample of risk-related appeal decisions, and more detailed review of nine decision notices, the main findings from this research strand are:

- In its broadest sense, risk represents a material consideration in a relatively small, but not insignificant, proportion of the wider volume of planning appeal decisions;
- The nature of risks reflect the type and location of a particular development proposal; flood and health risks are the most prevalent in recent appeal decisions;
- The prospects of success or failure of an appeal may be related to the available technical evidence or policy status afforded to a particular type of risk, although Inspectors can still hold a degree of discretion on whether to accept the technical evidence that is available to them, even if well founded;
- In the case of hazardous substances, Inspectors may rely upon the safety net provided by parallel consent regimes, particularly if there is any element of doubt relating to the technical evidence or the provisions of the development plan;
- In some cases, the decisions of Inspectors are influenced by the population groups at potential risk, for example children or the elderly, in evaluating the weight that should be attached to risk factors; and
- Most of the cases reviewed relate to the risk potential arising from an existing development or facility, rather than the risks posed by a new development.

6.0 The Planning Policy Regime for Major Hazard Sites

6.1 In the previous section, we considered risk as a factor in planning decision-making. In this section, we turn to the policy dimension, the context in which the process of decision-making occurs. The question here is, therefore, two-fold: first, *what are the relevant processes and procedures*, and second, *in the context of a plan-led system, what is the role of the Development Plan in managing risks?* Accordingly, this section provides a review of the existing planning policy regime for major hazard sites, and the parallel regulatory regimes that apply. Importantly, a distinction is made between the development of major hazard sites and the use and storage of hazardous substances, and the control of other development around designated major hazard sites.

Development of Major Hazard Sites³

6.2 Major hazards comprise a wide range of chemical process sites, fuel and chemical storage sites, pipelines, explosive sites and nuclear sites, and are the responsibility of the Health and Safety Executive (HSE). A number of different consent regimes exist to cover different aspects of the development of, and storage of substances at, hazardous installations (Table 6.1).

Table 6.1: Consent Regimes for Major Hazard Sites/Installations

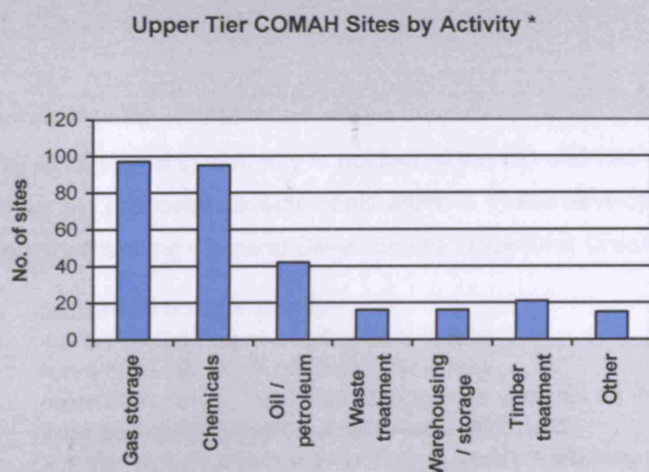
Type of Application	Consent Regime
Storage and use of hazardous substances	Subject to control under the Planning (Hazardous Substances) Act 1990. Consent is required from the local planning authority, but is separate from development control functions. Under the terms of Section 7(2) of the Act, the LPA must have regard to the advice of the HSE in determining an application for a licence to store a hazardous substance. Unlike the planning system generally, the regime for regulating the storage of hazardous substances does not run with the land and therefore, any change in the circumstances of the person to whom a consent was issued will result in its automatic revocation.
New development of hazardous installation	Subject to the normal planning process. The HSE is a statutory consultee under the terms of the Town and Country Planning (General Development Procedure) Order 1995 for any development involving the siting of new establishments, significant modifications to existing establishments such as to increase the risk or consequences of a major accident. Some categories of development involving hazardous installations or storage of hazardous substances fall within Schedule 1 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 for which an Environmental Impact Assessment

	(EIA) is mandatory. Other development may fall within Schedule 2 of the same Regulations for which an EIA may be necessary. This imposes an additional layer of assessment for some major hazard developments. However, the requirements for an EIA do not specifically include any risk assessment, although an EIA is expected to consider accidents arising from any development involving materials that could be harmful to the environment (including people) and to include consultation with the HSE.
Operation of hazardous installation	Control of Major Accident Hazard Regulations 1999 (COMAH) requires operators of new hazardous installations to submit a pre-construction safety report to the HSE before construction can commence. The COMAH regulations are the principal mechanism for health and safety once a facility is operational (see Figure 6.1).

Figure 6.1 Control of Major Accident Hazards Regulations, 1999

The Control of Major Accident Hazards Regulations 1999 (the COMAH Regulations) aim to prevent major industrial accidents involving dangerous substances and to limit the consequences to people and the environment of any which do occur. They apply to specific establishments at which dangerous substances are present in quantities equal to or exceeding threshold amounts defined in the Regulations. Operators of establishments subject to the COMAH Regulations are required to demonstrate that they have identified potential major accident hazards on their sites and taken sufficient steps to prevent their occurrence and to limit their consequences to people and the environment. COMAH implements Council Directive 96/82/EC known as the Seveso II Directive, as amended by Directive 2003/105/EC and replaced the previous Control of Industrial Major Accident Hazards Regulations 1984 (CIMAHS).

There are over 300 COMAH sites in the UK, with the most dangerous 'Upper Tier' sites involved in gas, chemicals and petroleum refining or storage. The greatest concentrations occur in Cheshire, Humberside, Cleveland and Greater London, although COMAH sites exist nationally. Operators of Upper Tier sites are required to prepare and submit a written safety report to the competent authority, prepare an on-site emergency plan and issue safety information to the public on a 'right to know' basis.



Source: Moffat and Hankard, undated. * Note: based on CIMAHS data

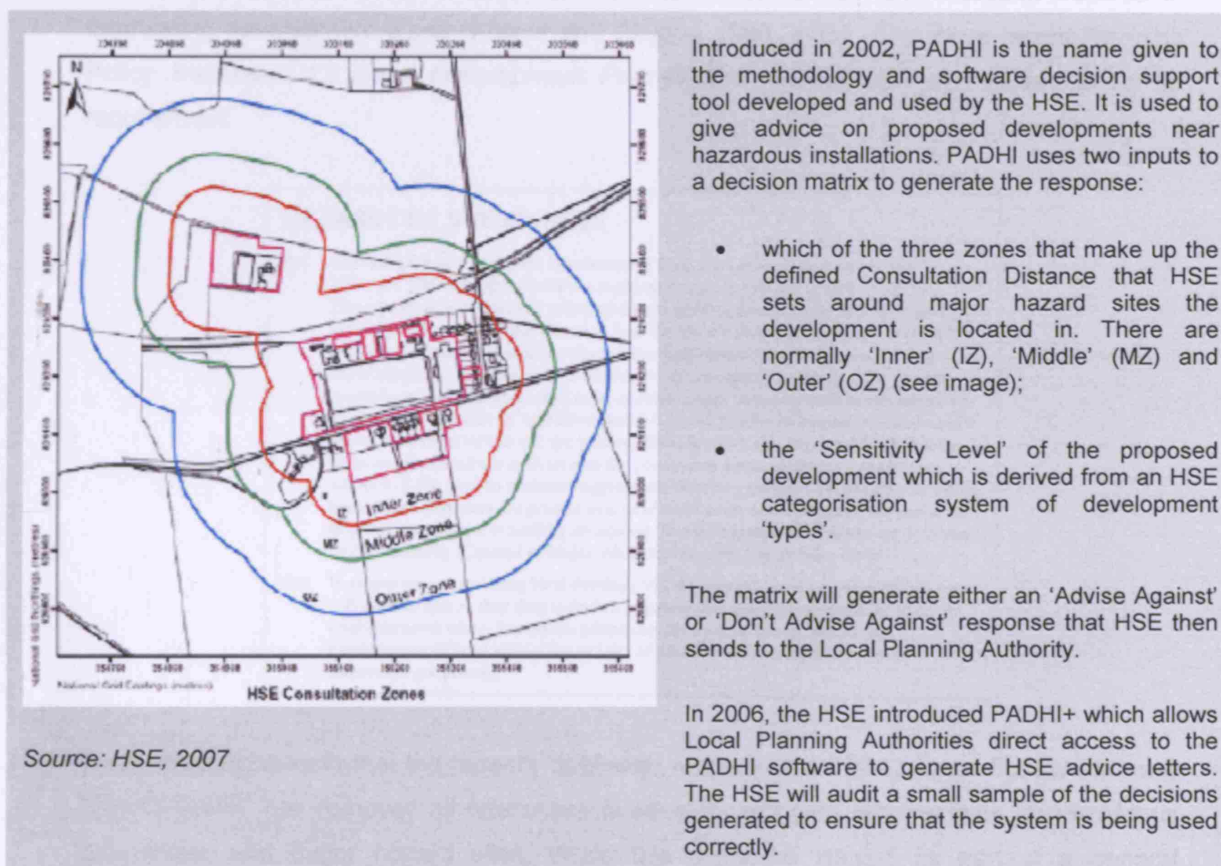
Concentrations of COMAH sites

Cheshire	23
Humberside	23
Cleveland	20
Gtr London	20
Essex	11
Gtr Manchester	11
Merseyside	10
West Yorkshire	10

Control of Development in Proximity to Major Hazard Sites

- 6.3 The HSE sets a consultation distance (CD) around major hazard sites and pipelines after assessing the risks and likely effects of major accidents at the installation or pipeline, once Hazardous Substance consent has been granted. The HSE provides advice to LPAs on the appropriateness of development proposals falling within the CD, usually based on its PADHI computer modelling technique (Figure 6.2).

Figure 6.2 Planning Advice for Developments near Hazardous Installations (PADHI)



Source: HSE, 2007

- 6.4 The local planning authority is notified of the CD and has a statutory duty to consult the HSE on certain proposed developments within it. These developments are defined in the Town and Country Planning (General Development Procedure) Order 1995 (as amended) as follows:
- residential accommodation;
 - more than 250 sq.m of retail floor space;
 - more than 500 sq.m of office floor space;
 - more than 750 sq.m of floor space to be used for an industrial process;
 - transport links (railways, major roads, etc); and
 - a material increase in the number of persons working within, or visiting, a CD.
- 6.5 LPAs also have the opportunity of regulating development of, or in close proximity, to major hazard sites through the formulation of policies in their Development Plans. Given the primacy

of the Development Plan as set out in Section 38(6) of the Planning and Compulsory Purchase 2004, proposals that are in clear conflict with the provisions of the plan can be rejected unless there are material considerations that outweigh this conflict. However, unlike PPS25 in the case of flooding, there is no government planning policy guidance or statement on developments involving a major hazard installation, in close proximity to such an installation or that involve the storage of a hazardous substance.

- 6.6 Historically, Planning Policy Guidance Note 12 *Development Plans and Regional Planning Guidance*, published in 1992, required local authorities to consider industrial hazards in formulating development plans (Walker and Bayliss, 1998, p.25). The more recent Planning Policy Statement 12 *Local Development Frameworks* (ODPM, 2004b) included a similar requirement:

HAZARDOUS SUBSTANCES

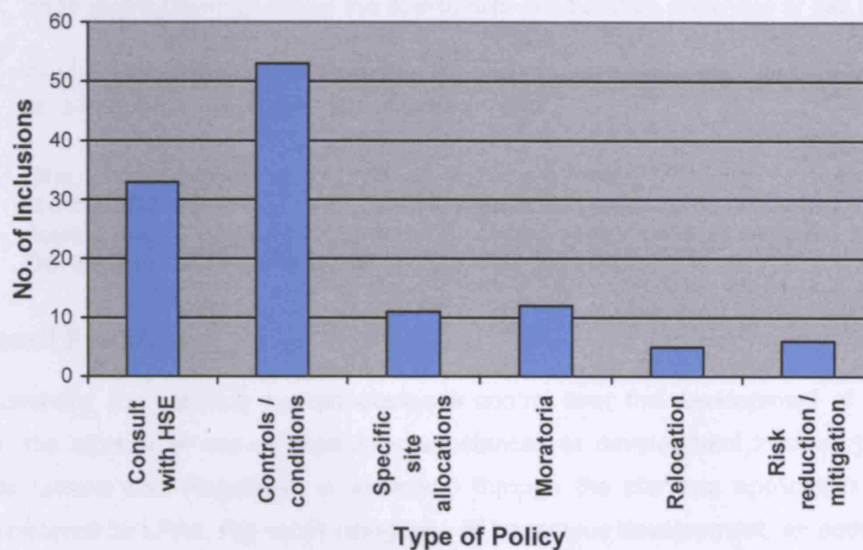
- B17. Council Directive 96/82/EC (the Seveso II Directive) came into force on 3rd February 1999. Member States are required to ensure that the objectives of the Directive: the prevention of major accidents involving hazardous substances and limiting their consequences for man and the environment are taken into account in land use policies. This will be achieved through controls on the location of new establishments where hazardous substances are present or are likely to be present; controls on modifications at existing establishments where hazardous substances are present, and controls on new developments in the vicinity of existing establishments where hazardous substances are present. The Directive also requires Member States to ensure that land use policies and the procedures for implementing them, take account of the need to maintain appropriate distances between establishments where hazardous substances are present and residential areas, areas of public use and areas of particular natural sensitivity or interest. These obligations have been implemented by the Planning (Control of Major-Accident Hazards) Regulations 1999.
- B18. In preparing or reviewing local development documents, local planning authorities will need to ensure that they include a policy or policies relating to the location of establishments where hazardous substances are used or stored, and to the development of land within the vicinity of establishments where hazardous substances are present.

- 6.7 It is interesting to note that the recently published replacement PPS12 *Local Spatial Planning* (DCLG, 2008), has removed all references to development plan requirements for hazardous substances and major hazard sites. While this might be viewed as part of a general streamlining of national planning policy statements, in terms of guiding development of and around major hazard sites, it would appear to be retrogressive step.
- 6.8 Further advice is also provided in Circular 04/2000 *Planning Controls for Hazardous Substances* (ODPM, 2000), but this is somewhat limited and only serves to further highlight the primacy of the development plan:

"In considering hazardous substances consent applications, or planning applications for development at or in the vicinity of sites at which hazardous substances are present, authorities must have regard to the provisions of the development plan, so far as it is material to the application." (para 46).

- 6.9 However, a survey of 75 development plans (Walker and Bayliss, 1998, p. 29) indicated a variable level of coverage in terms of policies related to hazardous installations, with the majority imposing some form of control or criteria against which development proposals will be assessed, but with significantly fewer pro-actively directing such development to particular locations or having complete moratoria against such developments (usually on account of dense urban areas) (Figure 6.3).

Figure 6.3: The Inclusion of Categories of Hazard-related Policies in Development Plans



Source: Walker and Bayliss, 1998

Survey of Development Plan Policies

- 6.10 A more recent review of Development Plan policies relating to major hazard sites has been conducted as part of this study. Informed by the analysis of appeal decisions in Section 5, 11 LPAs were chosen for more detailed case study review, with copies of relevant policies being obtained. Reflecting the current transition to the Local Development Framework (LDF) system, many of these policies were subject to review while others had been 'saved' pending adoption of new Core Strategies. The approach is similar to that adopted by Walker and Bayliss (1998), with the sample of Development Plan policies being analysed by the number and length of policies, and more importantly, the nature of the policies pursued. This is not intended to be an exhaustive exercise, but simply a 'snap-shot' of the range of type and detail of Development Plan policies for major hazard sites.

6.11 The outputs of this analysis are provided in Appendix 4, but the main observations were as follows:

- Some Development Plans contain policies for development of and around major hazard sites which are criteria-based, for example defined distances, and give formal status to assessment and consultation with the HSE;
- Some Development Plans do not contain specific policies, but list major hazard sites in the supporting text or in an appendix to the plan;
- Some Development Plans contain a specific policy for major hazard sites, but do not go on to identify them or define the appropriate consultation distances or risk zones;
- Only one Development Plan clearly identified major hazard sites and consultation zones on a map base, linked to a specific policy; and
- One LPA is proposing to produce a Supplementary Planning Document which will identify and define the major hazard sites in its area, and is promoting this as a more flexible way of updating information on major hazard sites as opposed to relying on a Development Plan policy which can become outdated.

Overall Findings

6.12 In summary, the planning system exercises control over the development of major hazard sites, the storage or use of hazardous substances or development in close proximity to a major hazard site. Regulation is exercised through the planning application process and administered by LPAs. For some categories of hazardous development, an additional level of assessment is provided through the EIA process. Meanwhile, hazardous substances are subject to a separate control and the storage or use of such substances requires consent from the LPA.

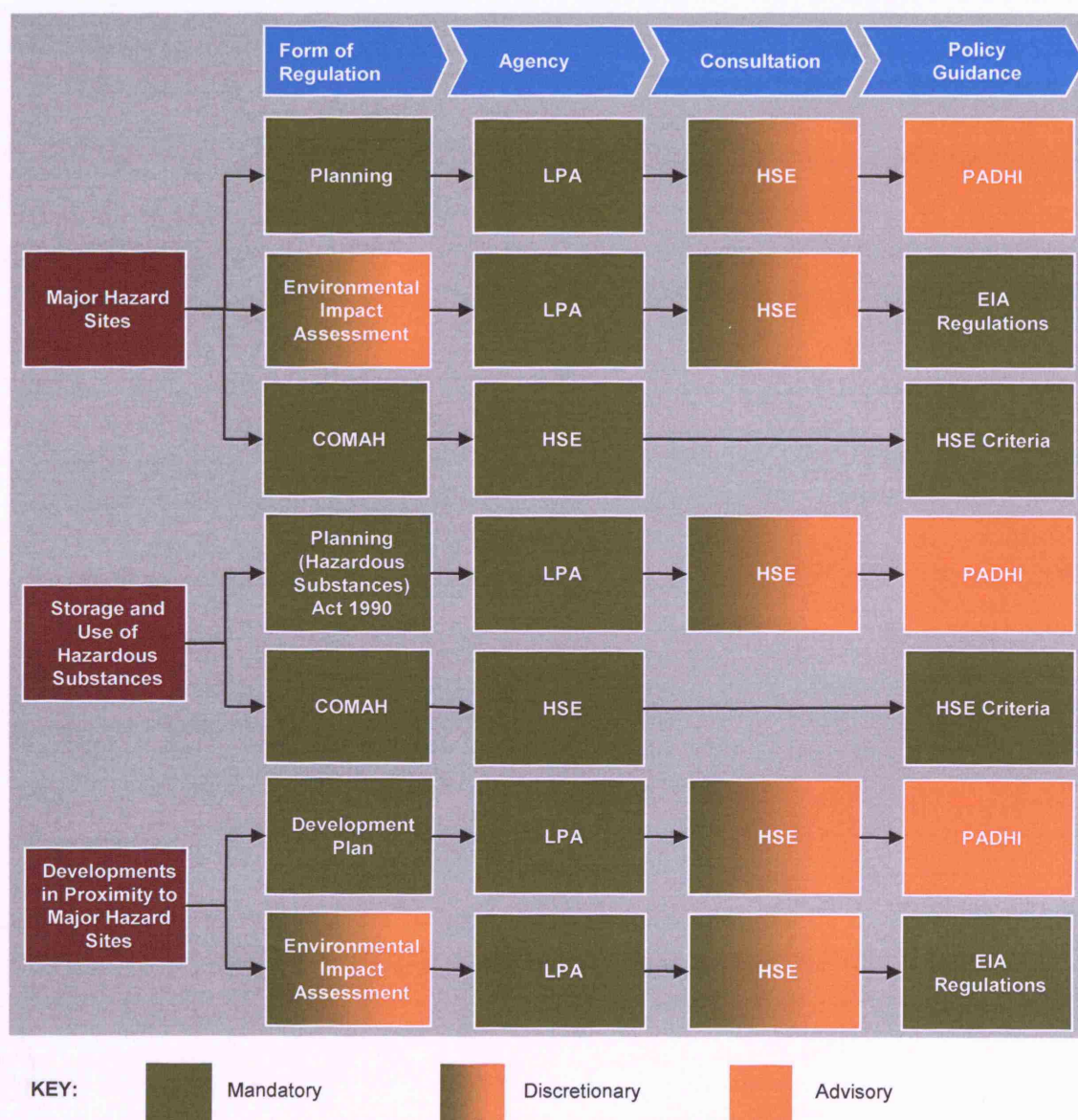
6.13 We can therefore 'map' a number of parallel regulatory mechanisms at work (Figure 6.4). Initially, this might appear to provide a comprehensive system of regulation for major hazard sites. However, with a more detailed review some significant shortcomings are apparent:

- Other than the COMAH regulations, the HSE has limited powers; for example the HSE is a mandatory consultee in all processes, but is limited to an advisory role only, with no Powers of Direction should the LPA choose to ignore their advice;
- HSE advice is almost entirely based on the PADHI computer modelling technique, which is a relatively recent approach, with a narrow technical focus. It therefore provides only a partial assessment, confirming the picture which emerged from the analysis of appeal decisions in the previous section;
- There is no national planning policy or guidance to assist LPAs in determining proposals for major hazard sites and, in particular, for the development that occurs around them; meaning that LPAs are entirely reliant on the HSE advice; this is reflected in the varying

quality and detail of policies for major hazard sites contained in the sample of Development Plans considered; and

- Most current Development Plans predate the introduction of the PAHDI decision-making tool, and the HSE advice that now emerges from it (although the HSE did provide advice to LPAs prior to this); the transition to the new LDF system provides LPAs with an opportunity to embody this new technique within their policies.

Figure 6.4: Mapping the Parallel Regulatory Regimes for Major Hazard Sites



7.0 Survey of Stakeholders

- 7.1 In this section, drawing on the findings of previous sections, we seek to assess *how do planning decision-makers evaluate risk?* To answer this question, we need a more detailed understanding of the factors that planning officers take into account, and their perspective on the processes at work and technical advice that is available to them.
- 7.2 This section therefore provides an overview of the responses to the questionnaire circulated to 11 planning policy sections at a selection of LPAs identified through the previous sections of this report. A full list of those consulted is provided in Appendix 2. Six replies were received, comprising four completed questionnaires, representing a 36 per cent response rate. The non-complete replies were from Council officers who felt they had insufficient personal experience of major hazard sites policies / applications to comment, or offered other forms of secondary information instead. Where possible, this information has been incorporated. To supplement the analysis, more detailed telephone interviews were held with Dacorum Borough Council (the LPA for the Buncefield site) and the Land-Use Planning team at the Health and Safety Executive (to help provide a balanced view).
- 7.3 To reflect the sample size, the analysis that follows focuses on providing a commentary of the responses and issues raised, rather than statistical outputs.

Analysis of Responses

1. Which of the following factors do you consider to be the most important when assessing development proposals in proximity to major hazard sites? Please rank in order (1 = highest, 6 = lowest)

In result order:

1. Type of hazard
2. Size/type of population at risk
3. Potential mitigation strategies
4. Economic / employment land needs
5. Housing land needs
6. Environmental impacts

- 7.4 This question sought views on the priority that should be afforded to different factors when assessing development proposals around major hazard sites. Perhaps not surprisingly given the context of this study, risk factors ('type of hazard' and 'population at risk') were generally afforded the greatest priority. Interestingly however, several respondents noted the importance of the economic benefits provided by both the major hazard sites themselves, and the industrial uses that often accompany them. In certain locations, these are major

employers, and so are given significant weight when formulating policies. Housing land needs and environmental impacts generally attracted the lowest priority amongst the respondents.

2. Does your Council make use of any national or other guidance in formulating any risk-based development plan policies? If so, please provide details below.

7.5 The response to this question, in all cases, was reference to the HSE Consultation Distances and PADHI modelling system. Some references were also made to Circular 04/2000 as the main national policy guidance. No other sources were identified.

3. How useful is this guidance / advice in improving your Council's planning policy approach to managing development of, or around, major hazard sites / installations? Please give reasons.

7.6 This question sought to assess the views of LPAs on the usefulness of the guidance / advice available to them which, based on the responses to the previous question, exclusively relates to the advice of the HSE and the PADHI system. Most LPA responses were supportive of the PADHI system, and considered its recent 'roll out' for use by LPAs themselves (known as PADHI+) as a positive step. However, one response suggested that PADHI was a simplistic technique, unable to accurately assess more complicated development proposals, such as mixed-use schemes. In addition, it was noted that the system has no facility to take account of the cumulative impact of a series of developments occurring within a specified Consultation Distance, nor can it be modified to take account of mitigation measures proposed by the operator or applicant. The same respondent suggested that while it was easy for LPAs to rely on PADHI, the system does not necessarily replace a 'common sense' approach when determining applications. Reliance on the HSE for advice was highlighted in several responses, noting that it is rare for this type of expertise to exist within planning policy teams, except in those LPA areas which have a history of dealing with major hazard sites.

4. Do you think that broader assessment of 'societal risk' (i.e. which takes account of the number and type of population at risk) factors should be incorporated in the planning control of major hazard sites?

7.7 Several responses noted that the issue of 'societal risk' had recently been consulted upon by the HSE, to which some LPAs (and indeed operators) had submitted responses. Amongst the responses gained here, there appeared to be broad support for adopting a more sophisticated measure of risk, but noted this would add further complications to an already very technical

area of policy. Some responses noted that the HSE evidence on modelling societal risk for individual sites is currently unreliable, speculating that it would likely fail to convince an Inspector as a reason for refusal if subject to challenge at an appeal. In addition, it was reported that the view on societal risk amongst some hazard site operators is, perhaps not unreasonably, that they should not be penalised for increases in off-site risks brought about by population increases resulting from the decisions by planners and actions of developers. The use of more stringent controls would simply add constraints and costs to the operation of major hazard sites, many of which are important components of the national infrastructure network.

5. Would any of the following assist in improving your Council's planning policy approach to managing development of, or around, major hazard sites / installations in future?

In result order:

- 1. A national planning policy statement on risks from major hazard sites*
- 2. More sophisticated mapping of risk zones around major hazard sites*
- 3. Assistance from expert bodies on drafting Development Plan policies*
- 4. Requiring applicants to submit risk assessments*
- 5. Defining major hazard sites on proposals maps*
- 6. more detailed technical guidance from relevant expert bodies (e.g. HSE)*
- 7. Powers of Direction by the Health & Safety Executive*

7.8 This question sought to test some potential options with respondents for improving the planning policy regime and process for major hazard sites. The most popular choice was the introduction of some form of national planning policy statement on risks from major hazard sites. Through the telephone interview, the HSE also expressed support for this idea as giving greater priority and direction for risk-factors within the planning system. More sophisticated mapping of risk zones (reflecting the limitations of PADHI highlighted above) and inputs from the HSE in drafting Development Plan policies were also favoured. In the case of the latter, some responses noted the need to provide greater certainty for operators and developers on how applications close to major hazard sites would be considered, both in terms of not constraining the operational needs of the hazard site itself and ensuring public safety in any development permitted nearby. Several responses expressed concern about resource shortages within the HSE as limiting the prospect of this happening in reality. The view of the HSE was that they would probably only be seeking to intervene in Development Plans concerning the 60 or so most dangerous sites/installations. It was noted that requiring applicants to submit their own risk assessments (as is now common with other disciplines such as flooding, noise etc) would also assist. Reference was made to the 'Hazard Impact Assessment' submitted as part of the application by Surrey County Cricket Club for redevelopment of the Brit Oval in Kennington, Lambeth, which is now subject to a call-in

Inquiry.³ In this context, one response suggested making the PADHI software available to applicants to model the risk impacts of their own development proposals.

- 7.9 Defining major hazard sites and risk zones on Development Plan proposals maps attracted mixed responses. Some suggested that this would provide greater certainty and transparency, in common with other types of development constraint notations. However, one response highlighted the potential security risks, while others suggested that it might lead to areas being 'blighted' as a result of being included within an identified risk zone. In the case of the latter, this could undermine regeneration initiatives, for example. More technical guidance from the HSE did not feature prominently in responses, the implication of which might be that significant advice is available already. Powers of Direction also attracted limited responses, perhaps reflecting the fact that the HSE advice is accepted by LPAs in 98 per cent of cases, while the HSE has itself only requested call-in four times in the last three decades.

Summary of Other Comments

- 7.10 Respondents were invited to provide additional 'open' comments. Responses included:
- 'Introduction of PADHI+ for use by LPAs has simply shifted burden of responsibility and resources away from the HSE, particularly in the more litigious climate post-Buncefield';
 - 'Vast majority of LPAs do not have expertise to assess or necessarily interpret risk impacts, therefore heavily reliant on inputs from HSE';
 - 'Difficult balance to be struck between public safety and not stifling development – in many parts of the country (e.g. Black County, the North East), development in close proximity to major hazard sites is necessary to stimulate jobs and economic growth';
 - 'The system is essentially event-led – Buncefield was a major wake-up call';
 - 'Lots of major hazard sites are in existing urban areas – many predate the development which has occurred around them. Process of development 'creep' has increased the populations at risk, without anybody really noticing, including the HSE'; and
 - 'We should move to the approach adopted in The Netherlands, where risk thresholds are applied to particular types of development. Houses, schools and hospitals are classified as 'vulnerable objects' and small offices and playing fields are 'less vulnerable objects'. A traffic-light approach is used to provide colour-coded risk maps.'

³ In January 2008, the London Borough of Lambeth granted planning permission against HSE advice, for development next to gasholders at the Oval Cricket Ground, London. The HSE subsequently requested that the Secretary of State should call-in this application for her own determination, which occurred in May 2008. A planning inquiry is now scheduled for October 2008, to which the HSE will submit evidence.

Overall Findings

7.11 Reflecting the above analysis, the overall findings of this research strand can be summarised as follows:

- For LPAs, the HSE is the 'expert' technical consultee on risk, and in the vast majority of cases their advice is accepted;
- For LPAs, PADHI is central to their assessment of risks, but as a technique it has some limitations;
- The HSE modelling of societal risk is currently unreliable, and while its introduction to planning decisions appears to be broadly supported, it could impose significant costs and constraints on major hazard site operators;
- The need to strengthen the traditional planning policy framework was broadly supported, confirming the findings of Section 6;
- Tensions are apparent in the relationship between the HSE and the planning system and those that administer it, principally concerning (shortage of) resources and confusion about who takes ultimate responsibility for the planning decision: is it the LPA acting on the advice of the HSE, or the LPA on the basis of their obligations under Section 38 (6) of the 2004 Act;
- There is an underlying awareness of the economic benefits associated with some major hazard sites and the industries they support; and
- Potential sensitivities will arise if greater publicity is given to major hazard sites and their surrounding risk zones; while greater transparency is normally favoured in the planning process, there is something of a security 'dilemma' and raising public perceptions of the risk may result in development 'blight' and have other implications well beyond the scope of this study such as insurance, house prices and compensation.

8.0 Findings, Implications and Conclusions

- 8.1 The previous sections have presented the findings of the different research strands adopted in this study. This concluding section synthesises those findings to answer the research questions posed in Section 3. It then goes on to consider the implications of these findings, reflects on the potential of a spatial planning approach to improve the effectiveness of the planning system in managing risks associated with major hazard sites, evaluates the limitations of the particular research methods used, before drawing some broad conclusions.

Synthesis of Findings

- 8.2 In Section 3, the basic line of enquiry was introduced, to assess *how effective is the planning system in managing the risks associated with major hazard sites?* This implied a number of more specific research questions, reproduced below:

- *To what extent is risk a factor in planning decision-making?*
- *What are the relevant processes and procedures?*
- *In the context of a plan-led system, what is the role of the Development Plan in managing risks?*
- *How do planning decision-makers evaluate risk?*

- 8.3 Through this study, we have investigated these questions from the perspective of the planning decision-making process (appeal decisions), the basic 'currency' of the planning system – the Development Plan – and from a practical perspective by surveying the views of local authority planning officers. The findings from each of these has been assessed at the end of the respective sections of this report, but to re-state, the 'headline' findings can be distilled as follows:

Table 8.1 HEADLINE FINDINGS

- i. In its broadest sense, risk represents a material consideration in a relatively small, but not insignificant, proportion of planning decisions; the types of risk encountered generally reflect the type and location of a particular development proposal;
- ii. While decisions concerning risks associated with major hazard sites are relatively few, these have significant implications in terms of potential risks for future development that occurs around them, for which awareness is growing;
- iii. Major hazard sites are well defined in terms of location and scale, with clear risks zones defined around them; the HSE are recognised as the sole provider of technical advice on risk, and their advice is consistently accepted by LPAs;
- iv. The PADHI decision-making tool which forms the basis of HSE advice has limitations, and methods of modelling societal risk beyond the defined risk zones are currently unreliable;

- v. There is no national planning policy or guidance to assist LPAs in determining proposals for major hazard sites and, in particular, for the development that occurs around them; meaning that LPAs are entirely reliant on the advice of the HSE; this is reflected in the varying quality and detail of policies for major hazard sites contained in Development Plans;
- vi. In most cases, the absence of robust Development Plan policies means that LPAs in determining applications are devoid of a planning policy context upon which to base a decision in accordance with Section 38(6) of the 2004 Act;
- vii. The absence of policies and notations in Development Plans for major hazard sites is a deficiency which goes against one of the fundamental objectives of spatial planning. This disadvantages the community and development industry, who rely on the Development Plan as the principal representation of future development constraints and opportunities; and
- viii. The issues of security and sensitivity surrounding major hazard sites and installations serve as an impediment to full and open knowledge transfer, which must be a prerequisite of effective spatial planning.

8.4 Taking account of these findings, we now turn to consider the original research questions outlined above.

To what extent is risk a factor in planning decision-making?

8.5 The assessment and consideration of risk is commonplace in the planning process. Risks are multi-faceted and pervade all development sectors. The evidence base for this is derived principally from research into the policy background and appeal decisions. In respect of the latter, appeals represent a 'snap-shot' of all planning decisions because in England only about 3-4 per cent of planning decisions are subject to appeal.⁴

What are the relevant processes and procedures?

8.6 Evidence from the literature review and interviews with stakeholders points to traditional planning processes and procedures. A statutory duty to consult with the competent agency / authority, and an obligation on the part of the LPA to have regard to consultation responses in reaching their decision. However, the decision remains that of the LPA who are mandated by Section 38(6) to make their decision in accordance with the Development Plan unless material considerations indicate otherwise

In the context of a plan-led system, what is the role of the Development Plan in managing risks?

8.7 On the basis of the review of Development Plan policies, appeal decisions and stakeholder interviews, the role of Development Plans in managing risks associated with major hazard sites is limited. In this regard, the Development Plan very rarely performs the traditional role in

⁴ Based on DCLG Development Control Statistics 2006-07, Planning Inspectorate Annual Report, 2006-07

planning for, or protecting, the community's interests. Plan policies fluctuate from having little or no reference to major hazard sites risk, to identifying and defining major hazard sites and formulating policies to control their development and that which occurs around them.

How do planning decision-makers evaluate risk?

- 8.8 Evidence from stakeholder interviews and appeal decisions in particular, suggests that planning decision-makers generally accept without question the technical evidence from the competent authority (in this case the HSE); it is rarely challenged. However, ultimately, the planning decision-maker has to balance the expert advice on risk with other material considerations and the provisions of the Development Plan in order to arrive at a legally robust decision. As noted in earlier sections of this study, some tensions are apparent between the HSE and those that administer the planning system.
- 8.9 Taken together, what does this mean for this study's overarching research question – ***how effective is the planning system in managing the risks associated with major hazard sites?*** Before answering this, it is instructive to remind ourselves what the primary purpose of the planning system is, as set out in PPS1: *'Good planning is a positive and proactive process, operating in the public interest through a system of plan preparation and control over the development and use of land'* (DCLG, 2005, p. 2). More particularly, this includes *'ensuring that development supports existing communities and contributes to the creation of **safe**, sustainable, liveable and mixed communities with good access to jobs and key services for all members of the community'* (emphasis added) (*ibid*, p. 3).
- 8.10 This study has shown that the management of risk associated with major hazard sites currently operates on the margins of the planning system. It is under-represented in the traditional policy approaches that underpin the operation of the planning system, which are national and local planning policy documents. A tension arises because the public expectation is that the Development Plan is the ultimate articulation of how and where development should occur within their area. For a number of reasons, major hazard sites do not feature prominently, notwithstanding the significant implications they present for creating safe communities. While other parallel regulatory regimes exist, such as Hazardous Substances Consents and COMAH, in themselves, these cannot be a substitute for appropriate treatment of major hazard sites in Development Plans. These other processes must become more embedded within the planning process. The Buncefield Investigation Board (2008, p. 6) has endorsed the fundamental principle that the LPA should be responsible for planning decisions, but that other agencies and regulatory mechanisms must be more closely aligned. At this point, it is pertinent to consider the extent to which an increasingly 'spatial' planning approach (as opposed to traditional 'land-use' planning) might put the planning system in a better position to mitigate against the risks associated with major hazard sites in the future.

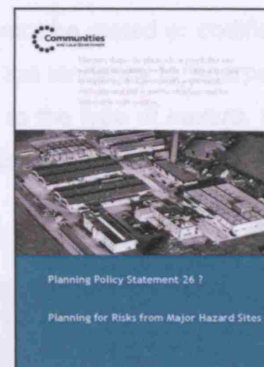
Reflections on a Spatial Planning Approach

- 8.11 Our final research question outlined in Section 3 was to contemplate *what implications do the findings of this research have for a spatial planning approach?* If we accept, very broadly, 'spatial' planning as an approach which seeks to 'open up' planning from simply land-use regulation to something which is informed by the needs of space 'users', and provides a mechanism to coordinate and mediate between the often conflicting demands of these users, then some possibilities become apparent.
- 8.12 The fundamental message that emerges from this study is the low regard given to major hazard sites generally in national planning guidance, forward planning and development control, with the implication that greater weight has often been attached to more traditional development needs, for example accommodating housing and economic development. If the planning system is to be an effective regulatory mechanism for alleviating risk, then a more integrated approach which considers a range of different sectors (such as major hazard operators), and works across different scales and beyond administrative boundaries (such as HSE consultation distances and risk assessment zones), will be required.
- 8.13 If spatial planning can be more responsive, and ultimately more proactive, then the planning system should be better placed to make judgements about risks from major hazard sites, and how they can be reduced for the populations at risk. In doing so, planning will be better equipped to justify its interventions when required, for example in steering development away from high risk areas. For the question must be what level of risk, if any, should the planning system 'tolerate' in order to deliver its other objectives, such as economic and social needs, or when faced with difficult allocation decisions such as where new housing growth should be accommodated. Therefore, a spatial planning approach may mean that the system can be better equipped to make the often difficult, and value-laden, decisions which arise concerning the (changing) level of risk to plan for, how this might be reduced, and how this should be balanced against other planning and Local Authority corporate objectives. More research could usefully explore this issue further.

Implications

- 8.14 In assessing the implications of these research findings, we can broadly distinguish between those that relate to the planning system itself, and those that relate to the Health and Safety Executive as a participant in that system, and one that is clearly heavily relied upon by LPAs.
- 8.15 In terms of the planning system, risk and risk management need to be embedded in the policy framework at all levels. The starting point for this could be a new Planning Policy Statement to elevate the issue of risk from major hazard sites to a national policy consideration, and provide

greater weight and clarity for LPAs. The increasingly sophisticated approach to flood risk that has emerged through three recent versions of PPG/S25, provides a template in this respect. Through the new LDF system, LPAs should identify major hazard sites, and include more detailed policies to manage the risks associated with them. This would provide greater certainty for both the operators of these sites, and the populations that live and work in close proximity to them.



- 8.16 Turning to the HSE, it is clear that the technical basis for risk assessment of major hazard sites is reasonably well established – they are clearly defined in terms of type and scale, and in many cases, risk zones have been established through the use of techniques such as PADHI. However, where there is significant scope for improvement is to upgrade the HSE's status to that of a statutory consultee with Powers of Direction. In the case of the latter, these have been rarely required in the past, but such powers would be necessitated by adopting a more transparent planning policy approach to major hazard sites. The HSE should remain the 'guardian' of potentially sensitive information about these sites and the risks that they pose, but has to recognise the need for greater transparency if the planning system is to fulfil its functions. This represents a significant challenge in terms of the HSE stepping outside of its 'comfort zone' if its assessments and methodologies are to be subject to greater public scrutiny. This may have significant resource implications, but is also fundamentally a culture change for the organisation. The example of planners now working within the Environment Agency may be one way of helping overcome this.

Limitations

- 8.17 Before outlining some final conclusions, it is appropriate to reflect on the limitations inherent to this study. Methodologically, only small samples have been drawn upon, in terms of the appeal decisions analysis, number of Development Plans reviewed, and stakeholders surveyed. In terms of the questionnaire survey, it is clear that major hazard sites represent a fairly specialist area of planning policy, which unfortunately limited the ability of respondents to comment in some cases. A more detailed understanding would no doubt have been facilitated by selecting a greater and wider temporal and geographical sample, and distributing a higher number of questionnaires with the intention of achieving a better response rate.
- 8.18 At a practical level, simplifications and generalisations have been made about the nature and character of major hazard sites, which may have in turn diluted the study's analytical rigour. Major hazard sites and installations encompass a wide variety of different types of facility and operation, each with their own challenges and risk characteristics. The processes and planning issues that apply to each are therefore varied and complex. Thus while in reality

'things happen in a subtle, confused, foggy, complex way, which cannot be stated or codified simply' (Dexter, 1970, p. 20), the researcher's Achilles' heel remains the tendency to 'sharpen and simplify'. The nature of risk is highly context-dependent, related to the type of hazard, its host environment and the population at risk, and as such, generalisations alone are unhelpful.

Conclusions

8.19 These limitations aside, what can we conclude about the effectiveness of planning system in managing the risks associated with major hazard sites? In other words, could Buncefield happen again? Regrettably, the answer has to be yes within the context of the current regime, as analysed through this study.

8.20 Although the profile of major hazard sites has been brought to the fore by this major event, it has not yet brought about a radical rethink, as has happened



Caravan park adjacent to Canvey Island depot
(Source: BMIIB, 2008)

following the catastrophic flooding over the past decade which now has greater priority in the planning system. Many of the findings of this study echo the research of Walker (1998) and Petts (1988), undertaken one and two decades ago respectively. Until such time as planners, investors, insurers, residents and purchasers of property can interrogate major hazard risks in the same way they can now do for flood risks, then the potential for another Buncefield remains.

8.21 This is fundamentally an area of planning policy that appears to be characterised by a 'silo' mentality, with a lack of joined-up working practices. Potentially, through the greater use of a spatial planning approach, we can move to a situation whereby planners feel more comfortable in the risk assessment / management arena, and risk specialists such as the HSE feel more comfortable working within the planning system. As important as the suggested changes in planning policy and process, achieving greater collaboration will go a long way to reducing the risks associated with major hazard sites.

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The aftermath of the Buncefield Oil Depot explosion, December 2005. Image courtesy of Royal Chiltern Air Support Unit

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APPENDICES

APPENDIX 1

EXTRACT FROM APPEAL DECISIONS SPREADSHEET

Year	Local Authority	Development Type	Dismissed / Allowed	Risk Type (1)	Risk Type (2)
2008	Poole Borough Council	Residential	Dismissed	Highway safety	
2008	Croydon, London Borough of	Business	Allowed	Highway safety	
2008	Sedgemoor District Council	Residential	Dismissed	Flood	
2008	North East Lincolnshire	Residential	Dismissed	Flood	
2008	Kings Lynn and West Norfolk Borough Council	Telecommunications	Allowed	Ecological	Aviation
2008	Exeter City Council	Residential	Allowed	Flood	
2008	Birmingham City Council	Other	Dismissed	Crime	
2008	Hammersmith & Fulham, London Borough of	Residential	Dismissed	Highway safety	
2008	Leeds City Council	Residential	Allowed	Highway safety	
2008	Plymouth City Council	Telecommunications	Allowed	Health	
2008	Horsham District Council	Residential	Dismissed	Health	
2008	South Northamptonshire District Council	Mixed use	Dismissed	Crime	
2008	Wealden District Council	Mixed use	Allowed	Flood	
2008	Hinckley & Bosworth Borough Council	Other	Dismissed	Highway safety	
2008	Southend Borough Council	Residential	Allowed	Flood	
2008	Lewisham, London Borough of	Residential	Allowed	Crime	
2008	South Gloucestershire Council	Telecommunications	Allowed	Health	
2008	Chichester District Council	Other	Allowed	Highway safety	

APPENDIX 2

LIST OF CONSULTEES

Bolsover District Council

Dacorum Borough Council

Dartford Borough Council

East Riding of Yorkshire Borough Council

Forest of Dean District Council

Halton Borough Council

Health and Safety Executive

Kings Lynn and West Norfolk Borough Council

Peterborough City Council

South Ayrshire Council

West Berkshire District Council

APPENDIX 3

SAMPLE QUESTIONNAIRE FORM

COVERING LETTER

Dear

I am a final year Masters student at the Bartlett School of Planning, University College London, currently undertaking a dissertation examining the planning policy regime around major hazard sites / installations.

Part of this process is to survey the views of Local Planning Authorities who have experience of formulating Development Plan policies for major hazard sites, and managing the development proposals which occur around them. It is clear that these issues are often of both local and regional significance, and therefore your views are extremely valuable. All responses will, of course, remain strictly confidential.

The questionnaire is attached in Microsoft Word format, and should only take 10 minutes to complete. Simply open the document, complete the questionnaire, save changes and attach it to a 'reply to' of this email.

I do hope that you will feel able to participate, so that balanced feedback can be obtained from a range of LPAs.

Should you require any further information, or encounter difficulties in returning the completed questionnaire, please do not hesitate to contact me via this email address.

Yours sincerely,
Ciaran Gunne-Jones

**SURVEY OF LOCAL PLANNING AUTHORITIES:
DEVELOPMENT PLAN POLICIES CONCERNING RISKS FROM HAZARD SITES**

Please indicate your answer(s) with an 'X' in the space provided unless stated otherwise

- 1. Which of the following factors do you consider to be the most important when assessing development proposals in proximity to major hazard sites? Please rank in order (1 = highest, 6 = lowest)**

Economic/employment land needs	<input type="checkbox"/>
Environmental impacts	<input type="checkbox"/>
Housing land needs	<input type="checkbox"/>
Potential mitigation strategies	<input type="checkbox"/>
Size/type of population at risk	<input type="checkbox"/>
Type of hazard	<input type="checkbox"/>

- 2. Does your Council make use of any national or other guidance in formulating any risk-based development plan policies? If so, please provide details below.**

- 3. How useful is this guidance / advice in improving your Council's planning policy approach to managing development of, or around, major hazard sites / installations? Please give reasons.**

Very useful	<input type="checkbox"/>
Useful	<input type="checkbox"/>
Not useful	<input type="checkbox"/>

Please give reasons below.

4. Do you think that broader assessment of 'societal risk' (i.e. which takes account of the number and type of population at risk) factors should be incorporated in the planning control of major hazard sites?

Yes
No
Don't know

Please give reasons below.

--

5. Would any of the following assist in improving your Council's planning policy approach to managing development of, or around, major hazard sites / installations in future?

A national planning policy statement on risks from major hazard sites
Powers of Direction by the Health & Safety Executive (HSE)
More detailed technical guidance from relevant expert bodies (e.g. HSE)
More sophisticated mapping of risk zones around major hazard sites
Requiring applicants to submit risk assessments
Defining major hazard sites on proposals maps
Assistance from expert bodies on drafting of Development Plan policies

YES	NO

Any other comments?

--

This survey questionnaire has been completed by:

Name	
Position	
Local Authority	
Email address	
Date	

Thank you for your time

APPENDIX 4

SUMMARY OF RISK-BASED DEVELOPMENT PLAN POLICIES

RISK-BASED DEVELOPMENT PLAN POLICIES IN RESPECT OF MAJOR HAZARD SITES

LPA / Development Plan	Number of Policies	Supporting Text (Number of Paragraphs)	Type of Policy	Hazard Sites Identified in Plan?	SAMPLE POLICY (EXTRACT)	COMMENTS
HALTON Halton Unitary Development Plan – Adopted April 2005	2	11	Criteria based	NO	<p>PR11 DEVELOPMENT OF SITES DESIGNATED UNDER THE CONTROL OF MAJOR ACCIDENT HAZARDS (PLANNING) REGULATIONS 1999 (COMAH)</p> <p>Development that falls within the designated COMAH definition will be permitted provided that all of the following criteria can be satisfied:</p> <p>a The applicant can demonstrate that the proposal will impose no significant development restrictions in terms of off-site accidental risk assessment on surrounding land users.</p> <p>b There is no reasonable alternative method of achieving the development's objective.</p> <p>PR12 DEVELOPMENT ON LAND SURROUNDING COMAH SITES</p> <p>Development on land within consultation zones around notified COMAH sites will be permitted provided that all of the following criteria can be satisfied:</p>	<p>The Halton UDP contains a specific chapter on 'Pollution and Risk' and covers a wide range of risk related activities and developments. As part of their LDF a draft Planning for Risk SPD is in the course of preparation and this will specifically list all COMAH sites and their consultation zones. The Council consider that an SPD will offer greater flexibility to accommodate changing circumstances in respect of COMAH sites.</p> <p>Consultation will be undertaken with the HSE and assessment will be based on the PADHI model. These are specifically referred to in the supporting text.</p>

					<p>a The likely accidental risk level from the COMAH site is not considered to be significant.</p> <p>b Proposals are made by the developer that will mitigate the likely effects of a potential major accident so that they are not considered significant.</p>	
DACORUM Dacorum District Plan - Adopted 21 st April 2004	1	8	Consultation based and guided by HSE	<p>YES – as at April 2003 in the Schedule of General Employment Areas</p>	<p>POLICY 125 HAZARDOUS SUBSTANCES</p> <p>The storage and/or handling of notifiable hazardous substances and development involving hazardous substances will not be permitted in locations other than:</p> <p>(a) General Employment Areas where industry or storage and distribution is proposed (Policy 31);</p> <p>(b) employment areas in the Green Belt where industry or storage and distribution is permitted under Policy 32; and</p> <p>(c) sites outside towns and villages where industry or storage and distribution is acceptable as an established use (Policy 34) or as the reuse of a building (Policy 110).</p> <p>Even in these locations, planning permission and hazardous substances consent will not be granted unless the Health and Safety Executive and the Environment Agency confirm that there will be no undue health risk to the site users or to the surrounding area. The Nature Conservancy Council for England will also be consulted if it appears that an area of particular</p>	<p>The location of the consultation zones is based on the situation in April 2003 and therefore, one of the difficulties encountered in the development plan process is how to update information on major hazard sites as it becomes known.</p>

						natural sensitivity or interest may be affected. Development proposals adjoining existing hazardous installations or sites where hazardous substances are present will be modified or refused so as to take fully into account the advice given by the Health and Safety Executive.	
FOREST OF DEAN Forest of Dean District Local Plan – Adopted November 2005	0	1	N/A	NO	N/A		Only reference to MHS is in the text where their existence in the District is noted and the involvement of the HSE in advising on developments within or in close proximity to such sites Policy applies only to employment related development
DARTFORD Dartford Local Plan – Adopted April 1995	1	1	Assessment based	NO	E14 Proposals for employment-related development will be assessed against the following factors: (a) the need to avoid creating a health or safety hazard, or pollution caused by noise, smoke, fumes or other emissions, (b) the creation of, or proximity to, a hazard as notified by the Health and Safety Executive, and (c) acceptable hours of operation.		
PETERBOROUGH Peterborough Local Plan (First Replacement) – Adopted July 2005	1	1	Assessment based	NO	O1W15 Development proposals which involve hazardous substances will only be permitted where: (a) they are not in locations which give rise to an unacceptable risk to health, public safety or the environment; and		

WEST BERKSHIRE West Berkshire District Local Plan – Adopted June 2002	1	2	Consultation based	Schedule (Appendix 11) included in the Local Plan, but no map-based definition of sites	<p>Potential risks from hazardous developments will be assessed with regard to any possible future expansion of the installation and the future development of nearby land.</p> <p>(b) they would not prejudice the implementation of other proposals in this Plan.</p>	
EAST RIDING OF YORKSHIRE East Yorkshire Borough Wide Local Plan -	1	2	Assessment based		<p>Policy OVS.7 The Council will not permit development which on advice from the Health and Safety Executive would cause unacceptable risk or harm to personal safety due to the presence of hazardous substances on the site or other land in the vicinity.</p> <p>APPENDIX 11: List of Deemed Hazardous Substance Sites in West Berkshire District at April 1996 Site Applicant Substances Quantity Menbury, Lambourn Thames Valley Eggs Liquid petroleum gas 26 tonnes The Station Yard, Jewell Calor Gas Services Liquid petroleum gas 200 tonnes Mortimer Station Ampere Rd, Calor Gas Ltd Liquid petroleum gas 198 tonnes London Road Trading Estate, Newbury Gas holder, British Gas PLC Storage of natural gas 21,750m³ Hambridge Road, Newbury Aggregate Depot Foster Yeoman Liquid petroleum gas 60 tonnes Bath Road, Theale</p> <p>POLICY EC5 - HAZARDOUS INSTALLATIONS PROPOSALS REQUIRING CONSENT FOR THE STORAGE AND USE OF HAZARDOUS SUBSTANCES, OR FOR DEVELOPMENT IN CLOSE PROXIMITY TO SUCH USES, WILL ONLY BE</p>	

Adopted June 1997						PERMITTED WHERE THEY WOULD NOT GIVE RISE TO AN UNACCEPTABLE RISK TO HUMAN HEALTH OR SAFETY, AND WHERE THEY ARE ACCEPTABLE IN TERMS OF PLAN POLICIES FOR THE PROTECTION OF THE OPEN COUNTRYSIDE, THE WATER ENVIRONMENT AND NATURE CONSERVATION.	
KINGS LYNN & WEST NORFOLK Kings Lynn and West Norfolk Borough Plan - Adopted November 1998	1	4	Assessment based	NO		Policy 9/22 In considering proposals for installations dealing with hazardous substances, development in the vicinity of hazardous installations, or the development of contaminated sites, account will be taken of the amount, type and location of the hazardous substances present, or proposed, and the need for special precautions or restrictions to protect future users of the site, and any other affected land.	Supporting text to the policy refers to the need to consult with the HSE and the existence of notified consultation zones
BOLSOVER Bolsover District Local Plan – Adopted February 2000	8	13	Assessment based policies relating to defined zones	Development Control Zones defined on the proposals map for each of the Districts MHS	EMP 17 COALITE CHEMICALS MIDDLE AND OUTER DEVELOPMENT CONTROL ZONES WITHIN THE COALITE CHEMICALS MIDDLE AND OUTER DEVELOPMENT CONTROL ZONES, AS DEFINED ON THE PROPOSALS MAP, AND DURING THE OPERATION OF THE WORKS AS A MAJOR HAZARD SITE, APPLICATIONS FOR PLANNING PERMISSION WILL BE ASSESSED IN THE LIGHT OF THE POTENTIAL RISKS FROM ACTIVITIES AT THE WORKS.	The most sophisticated development plan in terms of defining the zones at risk and the requirements that development proposals will have to satisfy	
SOUTH AYRSHIRE South Ayrshire Local Plan - Adopted	0	1	N/A	MHS are listed in an Appendix to the Local Plan	Extract from supporting text: The Council is responsible for the delivery of a wide range of public services in addition to those provided by external agencies. Private companies provide a number of additional services, such as gas and electricity supplies. The presence of these services may have safety implications for development nearby, and the Council may require to consult with the Health and Safety Executive to assess any		

